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1. The first step is to identify the problem or question that needs to be answered.

2. The second step is to gather relevant information and data.

3. The third step is to analyze the information and data.

4. The fourth step is to develop a solution or answer.

5. The fifth step is to implement the solution or answer.

6. The sixth step is to evaluate the results of the solution or answer.

7. The seventh step is to communicate the results of the solution or answer.

8. The eighth step is to reflect on the process and learn from the experience.

9. The ninth step is to apply the lessons learned to future problems or questions.

10. The tenth step is to continue to learn and grow as a professional.

11. The eleventh step is to stay up-to-date on the latest developments in the field.

12. The twelfth step is to seek out opportunities for professional development.

13. The thirteenth step is to build a strong professional network.

14. The fourteenth step is to stay motivated and committed to your work.

15. The fifteenth step is to embrace change and innovation.

16. The sixteenth step is to take ownership of your work and results.

17. The seventeenth step is to be a team player and support your colleagues.

18. The eighteenth step is to be a leader and inspire others.

19. The nineteenth step is to be a role model and set a good example.

20. The twentieth step is to be a lifelong learner and never stop growing.

CALENDAR

OF THE

5-2731

UNIVERSITY OF MICHIGAN

FOR

1894-95

ANN ARBOR, MICH.

PUBLISHED BY THE UNIVERSITY

1895

ANN ARBOR:
THE REGISTER PUBLISHING COMPANY.
1895.

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ANNOUNCEMENTS FOR 1895-96.

1895.

- Jan. 8. University Exercises resumed after Holiday Vacation.
- Feb. 15. (Evening.) FIRST SEMESTER CLOSES.
- Feb. 18. SECOND SEMESTER BEGINS.
- April 12. (Evening.) Recess begins, ending April 22 (evening).
- June 14, 15. *Examination for Admission to the School of Pharmacy.*
- June 22, 24. *Examination for Admission to the Department of Literature, Science, and the Arts.*
- June 23. *Baccalaureate Address.*
- June 25. *Class Day.*
- June 26. *Alumni Day.*
- June 27. COMMENCEMENT IN ALL DEPARTMENTS OF THE UNIVERSITY. The Commencement Oration is to be delivered by JAMES HULME CANFIELD, LL.D., Chancellor of the University of Nebraska.
- Summer Vacation from June 28 to September 30.
- Sept. 23-27. *Examination for Admission to the Department of Literature, Science, and the Arts.*
- Sept. 28, 30. *Examination for Admission to the Department of Medicine and Surgery, to the Department of Law, to the School of Pharmacy, to the Homoeopathic Medical College, and to the College of Dental Surgery.*
- Oct. 1. FIRST SEMESTER BEGINS IN ALL DEPARTMENTS OF THE UNIVERSITY.
- Nov. — Thanksgiving Recess of three days, beginning Tuesday evening, in all Departments of the University.
- Dec. 20. (Evening.) Holiday Vacation begins in all Departments.

1896.

- Jan. 7. Exercises Resumed.
- Feb. 14. (Evening.) FIRST SEMESTER CLOSES.
- Feb. 17. SECOND SEMESTER BEGINS.
- April 11. (Evening.) Recess begins, ending April 20 (evening).
- June 25. COMMENCEMENT IN ALL DEPARTMENTS OF THE UNIVERSITY.

1896.

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1896.																											

BOARD OF REGENTS.

JAMES B. ANGELL, LL.D.,
PRESIDENT.

		TERM EXPIRES
HON. ROGER W. BUTTERFIELD,	<i>Grand Rapids,</i>	Dec. 31, 1895.
HON. CHARLES HEBARD,	<i>Pequaming,</i>	" 1895.
HON. LEVI L. BARBOUR,	<i>Detroit,</i>	" 1897
HON. WILLIAM J. COCKER,	<i>Adrian,</i>	" 1897.
HON. PETER N. COOK,	<i>Corunna,</i>	" 1899.
*HON. HENRY S. DEAN,	<i>Ann Arbor,</i>	" 1899.
HON. HERMAN KIEFER,	<i>Detroit,</i>	" 1901.
HON. FRANK W. FLETCHER,	<i>Alpena,</i>	" 1901.

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SECRETARY AND STEWARD.

HARRISON SOULE,
TREASURER.

HON. HENRY R. PATTENGILL,
SUPERINTENDENT OF PUBLIC INSTRUCTION.
(Office at Lansing.)

Members of the Faculties

AND OTHER OFFICERS.*

Permanent Appointments and Appointments for Terms Longer than One Year.

- JAMES B. ANGELL, LL.D., PRESIDENT. South University Avenue.
ALBERT B. PRESCOTT, PH.D., M.D., *Director of the Chemical Laboratory, Professor of Organic Chemistry, and Dean of the School of Pharmacy.* 50 South Ingalls Street.
REV. MARTIN L. D'OUGE, LL.D., *Professor of the Greek Language and Literature, and Dean of the Department of Literature, Science, and the Arts.* 77 Washtenaw Avenue.
CHARLES E. GREENE, A.M., C.E., *Professor of Civil Engineering.* 37 East William Street.
JONATHAN TAFT, M.D., D.D.S., *Professor of the Principles and Practice of Oral Pathology and Surgery, and Dean of the College of Dental Surgery.* 23 North University Avenue.
WILLIAM H. PETTEE, A.M., *Professor of Mineralogy, Economic Geology, and Mining Engineering.* 52 Thompson Street.
JOHN A. WATLING, D.D.S., *Professor of Operative and Clinical Dentistry.* 121 North Huron Street, Ypsilanti.
EDWARD L. WALTER, PH.D., *Professor of Romance Languages and Literatures.* 93 South State Street.
ISAAC N. DEMMON, A.M., *Professor of English and Rhetoric.* 76 Washtenaw Avenue.
WILLIAM H. DORRANCE, D.D.S., *Professor of Prosthetic Dentistry and Dental Metallurgy.* 42 South Ingalls Street.
ALBERT H. PATTENGILL, A.M., *Professor of Greek.* 9 Monroe Street.
MORTIMER E. COOLEY, M.E., *Professor of Mechanical Engineering.* 32 Packard Street.

* The names of Professors (including Librarian), Junior Professors, Assistant Professors (including Superintendent of Shops and Director of the Gymnasium), and other officers, are placed in their appropriate divisions, according to term of appointment and length of continuous service with present rank.

- WILLIAM J. HERDMAN, PH.B., M.D., *Professor of Nervous Diseases and Electrotherapeutics.* 48 East Huron Street.
- WOOSTER W. BEMAN, A.M., *Professor of Mathematics.* 61 East Kingsley Street.
- VICTOR C. VAUGHAN, PH.D., M.D., *Professor of Hygiene and Physiological Chemistry, Director of the Hygienic Laboratory, and Dean of the Department of Medicine and Surgery.* 15 South State Street.
- HENRY L. OBETZ, M.D., *Professor of Surgery and Clinical Surgery, and Dean of the Homœopathic Medical College.* 20 West High Street, Detroit.
- * THOMAS M. COOLEY, LL.D., *Professor of American History and Constitutional Law.* 76 South State Street.
- CHARLES S. DENISON, M.S., C.E., *Professor of Descriptive Geometry, Stereotomy, and Drawing.* 23 South Division Street.
- DANIEL A. MACLACHLAN, M.D., *Professor of Ophthalmology, Otology, and Pædology in the Homœopathic Medical College.* 35 East Madison Street.
- HENRY S. CARHART, LL.D., *Professor of Physics, and Director of the Physical Laboratory.* 7 Monroe Street.
- LÉVI T. GRIFFIN, A.M., *Fletcher Professor of Law.* 148 Henry Street, Detroit.
- RAYMOND C. DAVIS, A.M., *Librarian.* 15 Church Street.
- † VOLNEY M. SPALDING, A.B., *Professor of Botany.*
- HENRY C. ADAMS, PH.D., *Professor of Political Economy and Finance.* 125 Hill Street.
- CALVIN THOMAS, A.M., *Professor of Germanic Languages and Literatures.* 76 Hill Street.
- HENEAGE GIBBES, M.D., *Professor of Pathology.* 16 Forest Avenue.
- BURKE A. HINSDALE, LL.D., *Professor of the Science and the Art of Teaching.* 74 Washtenaw Avenue.
- RICHARD HUDSON, A.M., *Professor of History.* 40 South Ingalls Street.
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- ALBERT A. STANLEY, A.M., *Professor of Music.* 19 South Ingalls Street.
- FRANCIS W. KELSEY, PH.D., *Professor of the Latin Language and Literature.* 12 Tappan Street.
- JEROME C. KNOWLTON, A.B., *Marshall Professor of Law, and Dean of the Department of Law.* 127 Hill Street.

* Professor Cooley has leave of absence, but delivers a brief course of lectures on the law of interstate commerce to advanced students in the Department of Law.

† Absent on leave.

- CHARLES S. MACK, A.B., M.D., *Professor of Materia Medica and Therapeutics in the Homœopathic Medical College, and Secretary of the Homœopathic Faculty.* 17 South State Street.
- CHARLES B. NANCREDE, A.M., M.D., *Professor of Surgery and Clinical Surgery in the Department of Medicine and Surgery.* 4 Cornwell Place.
- FLEMMING CARROW, M.D., *Professor of Ophthalmic and Aural Surgery and Clinical Ophthalmology in the Department of Medicine and Surgery.* 51 East Huron Street.
- OTIS C. JOHNSON, Ph.C., A.M., *Professor of Applied Chemistry.* 52 South Thayer Street.
- PAUL C. FREER, Ph.D., M.D., *Professor of General Chemistry, and Director of the Laboratory of General Chemistry.* 42 Forest Avenue.
- JAMES N. MARTIN, Ph.M., M.D., *Professor of Obstetrics and Diseases of Women in the Department of Medicine and Surgery.* 16 North State Street.
- NELVILLE S. HOFF, D.D.S., *Professor of Dental Materia Medica and Dental Mechanism.* 79 South State Street.
- GEORGE DOCK, M.D., *Professor of the Theory and Practice of Medicine and Clinical Medicine in the Department of Medicine and Surgery.* 14 Cornwell Place.
- JOHN W. CHAMPLIN, LL.D., *Professor of Law.* Grand Rapids.
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- JOSEPH B. DAVIS, C.E., *Professor of Geodesy and Surveying.* 51 South Ingalls Street.
- ASAPH HALL, JR., Ph.D., *Professor of Astronomy, and Director of the Observatory.* Observatory.
- ISRAEL C. RUSSELL, M.S., C.E., *Professor of Geology.* Corner of Hill and Oxford Streets.
- WARREN P. LOMBARD, A.B., M.D., *Professor of Physiology and Histology.* 86 South State Street.
- FLOYD R. MECHEM, A.M., *Tappan Professor of Law.* 3 Wilmot Street.
- *JACOB E. REIGHARD, Ph.B., *Professor of Animal Morphology.*
- THOMAS C. TRUEBLOOD, A.M., *Professor of Elocution and Oratory.* 64 East University Avenue.
- JAMES A. CRAIG, Ph.D., *Professor of Semitic Languages and Literatures and Hellenistic Greek.* 44 East Madison Street.
- ALEXIS C. ANGELL, A.B., LL.B., *Professor of Law.* 19 Watson Street, Detroit.

- OTTO KIRCHNER, A.M., *Professor of Law.*
37 East Warren Avenue, Detroit.
- ARTHUR R. CUSHNY, A.M., M.D., *Professor of Materia Medica and Therapeutics in the Department of Medicine and Surgery.*
44 East Madison Street.
- MAURICE P. HUNT, M.D., *Professor of Gynecology and Obstetrics in the Homœopathic Medical College.* 26 East Jefferson Street.
- EUGENE R. EGGLESTON, M.D., *Professor of the Theory and Practice of Medicine in the Homœopathic Medical College.*
29 East Jefferson Street.
- JOHN C. ROLFE, Ph. D., *Professor of Latin.*
47 South Division Street.
- J. PLAYFAIR McMURRICH, Ph.D., *Professor of Anatomy.*
86 South State Street.
- *HARRY B. HUTCHINS, Ph.B., *Professor of Law, and Dean Elect of the Department of Law.*
- FREDERICK G. NOVY, Sc.D., M.D., *Junior Professor of Hygiene and Physiological Chemistry.* 25½ Lawrence Street.
- GEORGE HEMPL, Ph.D., *Junior Professor of English.*
95 East University Avenue.
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- FRED M. TAYLOR, Ph.D., *Junior Professor of Political Economy and Finance.* 17 Church Street.
- PAUL R. DEPONT, A.B., B.S., *Assistant Professor of French, and Registrar of the Department of Literature, Science, and the Arts.* 23 East Jefferson Street.
- CLARENCE G. TAYLOR, B.S., *Superintendent of Shops in Engineering Laboratory.* 18 South University Avenue.
- JOSEPH H. DRAKE, A.B., *Assistant Professor of Latin.*
12½ North Thayer Street.
- FRED N. SCOTT, Ph.D., *Assistant Professor of Rhetoric.*
1 College Street.
- FRANK N. COLE, Ph.D., *Assistant Professor of Mathematics.*
61 Washtenaw Avenue.
- ALEXANDER ZIWET, C.E., *Assistant Professor of Mathematics.*
44 East Madison Street.
- GEORGE W. PATTERSON, Jr., A.M., S.B., *Assistant Professor of Physics.* 14 South University Avenue.
- GEORGE A. HENCH, Ph.D., *Assistant Professor of German.*
21 Monroe Street.

* Professor Hutchins will enter upon his duties at the beginning of the year 1895-96.

FRANK C. WAGNER, A.M., B.S., *Assistant Professor of Mechanical Engineering.* 43½ South Twelfth Street.

G. CARL HUBER, M.D., *Assistant Professor of Histology.* 24 East Ann Street.

ALVISO B. STEVENS, PH.C., *Assistant Professor of Pharmacy.* 13 Oakland Avenue.

JOHN O. REED, PH.M., *Assistant Professor of Physics.* 34 East Kingsley Street.

WILLIAM A. CAMPBELL, B.S., M.D., *Assistant Professor of Anatomy, and Secretary of the Faculty of the Department of Medicine and Surgery.* 21 South State Street.

WILLIAM F. BREAKLEY, M.D., *Lecturer on Dermatology.* 54 East Huron Street.

JOSEPH L. MARKLEY, PH.D., *Instructor in Mathematics.* 50 Thompson Street.

MORITZ LEVI, A.B., *Instructor in French.* 48 South Twelfth Street.

ELMER A. LYMAN, A.B., *Instructor in Mathematics.* 9 Lawrence Street.

GEORGE O. HIGLEY, M.S., *Instructor in General Chemistry.* 14 Olivia Place.

DAVID M. LICHTY, M.S., *Instructor in General Chemistry.* 47 Packard Street.

MAX WINKLER, PH.D., *Instructor in German.* 14 South State Street

JOSEPH H. VANCE, LL.B., *Assistant Librarian in charge of the Law Library.* Ann Arbor Town.

JOSEPH CLARK, *Superintendent of Hospitals.* 8 Cornwell Place.

HAMILTON REEVE, *Superintendent of Buildings and Grounds.* 44 East University Avenue.

Non-Resident Lecturers on Special Topics for 1894-95.

MARSHALL D. EWELL, LL.D., *Lecturer on Medical Jurisprudence.* 59 Clark Street, Chicago, Ill.

JAMES L. HIGH, LL.D., *Lecturer on Injunctions and Receivers.* Chicago, Ill.

JOHN B. CLAYBERG, LL.B., *Lecturer on Mining Law.* Helena, Mon.

MELVILLE M. BIGELOW, PH.D., *Lecturer on Insurance.* Cambridge, Mass.

GEORGE H. LOTHROP, PH.B., *Lecturer on Patent Law.* 143 Fort Street West, Detroit.

HENRY H. SWAN, A.M., *Lecturer on Admiralty Law.* 664 Woodward Avenue, Detroit.

OSCAR R. LONG, M.D., *Lecturer on Mental Diseases in the Homoeopathic Medical College.* Ionia.

Other Appointments for 1894-95.

- THOMAS A. BOGLE, LL.B., *Professor of Law in charge of the Practice Court.* 128 Hill Street.
- JAMES B. FITZGERALD, M.D., *Director of the Gymnasium.* 6 North Division Street.
- DEAN C. WORCESTER, A.B., *Assistant Professor of Animal Morphology.* 9 Elm Street.
- FREDERICK C. NEWCOMBE, B.S., PH.D., *Acting Assistant Professor of Botany.* 51 East Liberty Street.
- ALFRED H. LLOYD, PH.D., *Acting Assistant Professor of Philosophy.* 41 South Twelfth Street.
- VICTOR C. VAUGHAN, PH.D., M.D., *Lecturer on Toxicology in its Legal Relations in the Department of Law.* 15 South State Street.
- HENRY C. ADAMS, PH.D., *Lecturer on the Railroad Problem in the Department of Law.* 125 Hill Street.
- ANDREW C. McLAUGHLIN, A.B., LL.B., *Lecturer on Constitutional Law and Constitutional History in the Department of Law.* 25 Church Street.
- RICHARD HUDSON, A.M., *Lecturer on Comparative Constitutional Law in the Department of Law.* 40 South Ingalls Street.
- JONATHAN A. C. HILDNER, A.M., *Instructor in German.* 101 South Main Street.
- SIMON M. YUTZY, M.D., *Instructor in Osteology and Assistant Demonstrator of Anatomy.* 54 East Huron Street.
- ELIAS F. JOHNSON, B.S., LL.M., *Instructor in Law.* 31 North University Avenue.
- BENJAMIN P. BOURLAND, A.M., *Instructor in French.* 27 South Division Street.
- JOHN R. EFFINGER, JR., PH.M., *Instructor in French.* 37 Forest Avenue.
- MARTIN L. BELSER, M.D., *Instructor in Pathology and Demonstrator of Autopsies.* 72 Forest Avenue.
- JULIUS O. SCHLOTTERBECK, PH.C., B.S., *Instructor in Pharmacognosy and Botany.* 31 Lawrence Street.
- LORENZO N. JOHNSON, A.M., *Instructor in Botany.* 24 Forest Avenue.
- HERBERT F. DeCOU, A.M., *Instructor in Greek and Sanskrit.* 16 Lawrence Street.
- ERNST H. MENSEL, A.M., *Instructor in German.* 28 Monroe Street.

LAWRENCE A. McLOUTH, A.B., *Instructor in German.*

63 East Ann Street.

EARLE W. DOW, A.B., *Instructor in History.*

82 Hill Street.

A GEORGE E. DAWSON, A.B., *Instructor in English.*

47 East Ann Street.

MOSES GOMBERG, Sc.D., *Instructor in Organic Chemistry.*

69 South University Avenue.

CLARENCE G. WRENTMORE, B.S., *Instructor in Descriptive
Geometry and Drawing.*

65 South Fourth Avenue.

KARL E. GUTHE, Ph.D., *Instructor in Physics.*

36 East Kingsley Street.

TOBIAS DIEKHOFF, A.B., *Instructor in German.*

13 South State Street.

GEORGE A. MILLER, Ph.D., *Instructor in Mathematics.*

61 Washtenaw Avenue.

W. FRANKLIN EDWARDS, B.S., *Instructor in Organic Chem-
istry, and Accountant in the Chemical Laboratory.*

48 East University Avenue.

SIDNEY D. TOWNLEY, M.S., *Instructor in Astronomy.* Observatory.

LOUIS P. HALL, D.D.S., *Instructor in Dental Anatomy and
Operative Dentistry.*

132 Hill Street.

HENRY A. SANDERS, A.M., *Instructor in Latin.* 21 Forest Avenue.

CLARENCE L. MEADER, A.B., *Instructor in Latin, and Lecturer
on Roman Law in the Department of Law.*

9 East University Avenue.

CHARLES A. KOFOID, Ph. D., *Instructor in Vertebrate Mor-
phology.*

66 East University Avenue.

WALLACE S. ELDEN, A.M., *Instructor in French.*

35 Church Street.

ARTHUR G. HALL, B.S., *Instructor in Mathematics.*

63½ South Division Street.

JOHN W. DWYER, LL.M., *Instructor in Law.*

50 East Kingsley Street.

THOMAS W. HUGHES, LL.M., *Instructor in Law.*

25 South State Street.

FRANK W. NAGLER, B.S., *Instructor in Electrotherapeutics.*

38 South Thayer Street.

WALTER DENTON SMITH, LL.B., *Instructor in Law.*

36 East University Avenue.

WILLIAM D. JOHNSTON, A.M., *Instructor in History.*

28 South Fifth Avenue.

GEORGE REBEC, Ph.B., *Instructor in Philosophy.*

95 Washtenaw Avenue.

16 *Members of the Faculties and other Officers.*

- FRANK R. LILLIE, PH.D., *Instructor in Zoology.* 9 Elm Street.
 DANIEL B. LUTEN, B.S., *Instructor in Engineering.*
 21 Monroe Street.
 REV. JOHN BIGHAM, PH.D., *Instructor in Philosophy.*
 45 South Twelfth Street.
 KEENE FITZPATRICK, *Instructor in the Gymnasium.*
 44 East Liberty Street.
 JAMES G. LYND, M.D., *Demonstrator of Obstetrics and Gynæ-
 cology in the Department of Medicine and Surgery.*
 21 South State Street.
 ALICE L. HUNT, *Assistant in Drawing.* 16 South Thayer Street.
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 CYRENUS G. DARLING, M.D., *Demonstrator of Surgery in the
 Department of Medicine and Surgery, and Clinical Lecturer on
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 38 East University Avenue.
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 in the Homœopathic Medical College.*
 28 South Main Street.
 EUGENE H. ROBERTSON, PH.M., *Assistant to the Professor of
 Pathology in the Department of Medicine and Surgery.*
 11 North State Street.
 BYRON A. FINNEY, A.B., *Assistant in the General Library in
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 CHARLES T. McCLINTOCK, PH.D., M.D., *Assistant in Hygiene.*
 78 East Washington Street.
 ALDRED S. WARTHIN, PH.D., M.D., *Demonstrator of Clinical
 Medicine in the Department of Medicine and Surgery.*
 14 South State Street.
 ANDERSON H. HOPKINS, PH.B., *Assistant in the General Li-
 brary.* 70 Hill Street.
 CHARLES H. COOLEY, PH.D., *Assistant in Political Economy.*
 76 South State Street.
 FRANK H. DIXON, PH.B., *Assistant in Political Economy.*
 82 Hill Street.
 JAMES P. BRIGGS, PH.C., *Pharmacist in the University Hospi-
 tal.* 36 Catherine Street.
 ALLISON W. HAIDLE, D.D.S., *Demonstrator of Dental Mechan-
 ism.* 114 South State Street.
 JEANNE C. SOLIS, M.D., *Assistant to the Professor of Nervous
 Diseases in the Department of Medicine and Surgery.*
 25 North State Street.

ARTHUR MACGUGAN, M.D., *Demonstrator of Nervous Diseases in the Department of Medicine and Surgery.*

79 West Huron Street.

PERRY F. TROWBRIDGE, Ph.B., *Assistant in Qualitative Analysis.*

10 Observatory Street.

JOHN B. JOHNSTON, Ph.B., *Assistant in Invertebrate Morphology.*

31 North University Avenue.

LOUIS A. STRAUSS, B.L., Ph.M., *Assistant in English.*

2 Thompson Street.

WARREN H. LEWIS, B.S., *Assistant in Vertebrate Morphology.*

19 Forest Avenue.

WILLIAM G. RICE, M.D., *Demonstrator of Ophthalmic and Aural Surgery and Clinical Ophthalmology and Otology in the Department of Medicine and Surgery.*

7 Hamilton Block.

JOSEPH FOSTER, B.S., M.D., *Assistant to the Professor of Ophthalmic and Aural Surgery and Clinical Ophthalmology in the Department of Medicine and Surgery.*

78 East Washington Street.

JULIAN McCLYMONDS, M.D., *Assistant to the Professor of Surgery and Clinical Surgery in the Department of Medicine and Surgery.*

78 East Washington Street.

THEODORE L. CHADBOURNE, B.S., M.D., *Assistant to the Professor of the Theory and Practice of Medicine and Clinical Medicine in the Department of Medicine and Surgery.*

78 East Washington Street.

JOHN W. FOLEY, M.D., *Assistant to the Professor of Obstetrics and Diseases of Women in the Department of Medicine and Surgery.*

95 East Huron Street.

ELIJAH M. HOUGHTON, Ph.C., M.D., *Assistant to the Professor of Materia Medica and Therapeutics in the Department of Medicine and Surgery.*

34 South State Street.

ALFRED B. OLSEN, M. D., *Assistant in Histology.*

3 Thompson Street.

EDWIN A. MURBACH, A.B., M.D., *Hospital Surgeon in the University Hospital.*

University Hospital.

FRANK S. BOURNS, B.S., *Assistant Demonstrator of Anatomy.*

6 South Observatory Street.

CARLTON D. MORRIS, M.D., *Assistant in Physiological Chemistry.*

49 South University Avenue.

JAMES SEYMOUR, Ph.C., *Assistant in Qualitative Analysis.*

28 East Huron Street.

JOHN H. SCHAFFNER, A.M., *Assistant in the Botanical Laboratory.*

89 East Huron Street.

18 *Members of the Faculties and other Officers.*

- EDWIN H. EDWARDS, B.S., *Assistant in the Botanical Laboratory.* 83 East Washington Street.
WILLARD C. GORE, PH.B., *Assistant in English.* 4 Thompson Street.
LESTER E. PECK, M.D., *House Surgeon in the Homœopathic Hospital.* Homœopathic Hospital.
BURT D. WALKER, M.D., *House Physician in the Homœopathic Hospital, and Assistant to the Professor of the Theory and Practice of Medicine in the Homœopathic Medical College.* Homœopathic Hospital.
JENNIE HUGHES, M.D., *Assistant to the Professor of Gynecology and Obstetrics, and to the Professor of Materia Medica and Therapeutics, in the Homœopathic Medical College.* 24 South State Street.
EMERSON R. MILLER, PHAR.M., B.S., *Assistant in Qualitative Analysis.* 9 South Fifth Avenue.
FRED W. PALMER, M.D., *Hospital Physician in the University Hospital.* University Hospital.
CHARLES T. WHINERY, D.D.S., *Assistant in Operative and Clinical Dentistry.* 47 East Liberty Street.
JOHN P. DAVIS, PH.D., *Assistant in Political Economy.* 21 South Fourteenth Street.
EDWARD H. TROY, M.D., *Assistant to the Professor of Pathology in the Department of Medicine and Surgery.* 64 East Kingsley Street.
ERVIN D. BROOKS, B.S., M.D., *Assistant to the Professor of Ophthalmology, Otology, and Pedology in the Homœopathic Medical College.* 9 North State Street.
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Special Assistants in the Engineering Laboratory.

- ROBERT A. WINSLOW, *Foundry.* 32 Wall Street.
JOHN M. SMOOTS, *Iron Room.* 80 Forest Avenue.
HORACE T. PURFIELD, *Wood Room.* 36 South Twelfth Street.
THOMAS ORR, *Forge Shop.* 981 Jefferson Avenue, Detroit.

UNIVERSITY OF MICHIGAN.

THE UNIVERSITY AND THE STATE.

THE University of Michigan is a part of the public educational system of the State. The governing body of the institution is a Board of Regents, elected by popular vote for terms of eight years, as provided in the Constitution of the State. In accordance with the law of the State, the University aims to complete and crown the work that is begun in the public schools, by furnishing ample facilities for liberal education in literature, science, and the arts, and for thorough professional study of medicine, pharmacy, law, and dentistry. Through the aid that has been received from the United States and from the State, it is enabled to offer its privileges, without charge for tuition, to all persons of either sex, who are qualified for admission. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the institution to all students, wherever their homes. It is in this broad, generous, and hospitable spirit, that the University has been founded, and that it endeavors to do its work.

ORGANIZATION OF THE UNIVERSITY.

The University comprises the Department of Literature, Science, and the Arts, the Department of Medicine and Surgery, the Department of Law, the School of Pharmacy, the Homœopathic Medical College, and the College of Dental Surgery. Each Department has its special Faculty. The University Senate is composed of all the faculties, and considers questions of common interest and importance to them all.

In the Department of Literature, Science, and the Arts, different lines of study lead to the degrees of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, Bachelor of Letters, the corresponding Masters' degrees, and the degrees of Doctor of Philosophy, Doctor of Science, Doctor of Letters, Civil Engineer, Mechanical Engineer, Mining Engineer, and Electrical Engineer. The degree of Bachelor of Science is given for the course in general science, and for the courses in engineering, in chemistry, and in biology.

In the professional schools degrees are given as follows: In the Department of Medicine and Surgery, the degree of Doctor of Medicine; in the Department of Law, the degrees of Bachelor of Laws and Master of Laws; in the School of Pharmacy, the degrees of Pharmaceutical Chemist and Master of Pharmacy; in the Homœopathic Medical College, the degree of Doctor of Medicine; in the College of Dental Surgery, the degrees of Doctor of Dental Surgery and Doctor of Dental Science.

Students in any department of the University may enter the classes in any other, upon obtaining permission from the Faculties of the respective departments.

THE LIBRARIES.

The libraries of the University are the General Library, the Medical Library, the Law Library, and the Library of the College of Dental Surgery. They contained in the aggregate, September 30, 1894, 92,228 volumes, 16,337 unbound pamphlets, and 1,000 maps.

THE GENERAL LIBRARY contains 74,355 volumes, 15,242 unbound pamphlets, and 1,000 maps. In this enumeration are included the following special collections: Parsons Library (political economy), 4,325 volumes and 5,000 pamphlets; McMillan Shakespeare Library, 3,610 volumes; Hagerman Collection (history and political science), 2,660 volumes; Goethe Library, 875 volumes; Dorsch Library (miscellaneous), 1,676 volumes and 148 pamphlets.

Two hundred and eighty periodicals are taken.

The catalogue of the library is the usual card catalogue of authors and subjects.

Members of the faculties and other officers of the University may draw books from the library, subject to certain restrictions. To all other persons it is a reference library. The reading room for general use will seat 210 readers. Separate rooms are provided for advanced students where work is pursued with the necessary books at hand.

The library is open for consultation twelve and one-half hours daily during the academic year, and six hours daily during the three months of the summer vacation. The only exceptions to the above are Sundays and legal holidays.

THE MEDICAL LIBRARY, containing 5,774 volumes and 1,095 unbound pamphlets, is shelved with the General Library, and is consulted under the same regulations. One hundred medical journals are regularly received.

THE LAW LIBRARY occupies the large room on the first floor of the law building. In 1885 it was greatly increased by the generosity of Mr. Christian H. Buhl, of Detroit, who presented to the University a large collection of law books. This library now contains 11,465 volumes.

THE LIBRARY OF THE COLLEGE OF DENTAL SURGERY is shelved in a room in the dental building. It contains several sets of valuable periodicals and many of the most important treatises on the theory and practice of dentistry. The whole number of volumes is 634. Thirteen dental periodicals are taken.

Two bequests of money were made to the General Library in 1894:—the FORD BEQUEST of \$20,000 by Professor Corydon L. Ford, and the COYL BEQUEST of \$10,000 by Miss Jean L. Coyl, of Detroit.

THE ASTRONOMICAL OBSERVATORY.

The Observatory is known as the Detroit Observatory, having been founded through the liberality of citizens of Detroit. Valuable additions and improvements have been made by contributions from several sources. The building consists of a main part, with a movable dome, and two wings. The meridian circle in the east wing was presented by Mr. Henry N. Walker, of Detroit. It was constructed by Pistor & Martins, of Berlin. In the main part are mounted clocks by Tiede and Howard. The west wing contains the observatory library. It connects with the residence of the Director. The refracting telescope, mounted in the dome, has an object glass thirteen inches in diameter. It was constructed by the late Henry Fitz, of New York.

A small observatory near the main building is used in the work of instruction. It contains an equatorial telescope of six inches aperture and a transit instrument of three inches aperture, with zenith telescope attachment.

THE MUSEUMS.

The University Museums contain collections illustrative of natural history, the industrial arts, chemistry, materia medica, anatomy, archæology, ethnology, the fine arts, and history, arranged in such a way as to render them accessible both to students and to visitors. The University affords a secure depository for objects of value and curiosity, and it is hoped that frequent gifts will be made to its several museums.

The museum building contains the collections in natural history, the industrial arts, archaeology and ethnology, and the Chinese exhibit. The collections of works of art, including historical medallions and coins, are in the art gallery.

The following descriptions indicate the character of some of the collections belonging to the University. The collections specially used for instruction in medicine and in dentistry will be found described in the chapters devoted to the medical and dental schools.

NATURAL HISTORY.

I. THE MINERALOGICAL COLLECTION comprises about 6,000 specimens. It embraces about 2,500 specimens (principally European) purchased of the late BARON LEDERER, and known as the LEDERER COLLECTION; and, besides others, a rich collection of the MINERAL SPECIES OF MICHIGAN, including all varieties of copper ore and associated minerals from the Lake Superior mining region. Extensive additions to the collection have recently been made.

II. The GEOLOGICAL COLLECTION consists of:

1. The large series of lithological and palæontological specimens brought together by the State geological survey, of which over a hundred fossil species have become the types of original descriptions.

2. The WHITE COLLECTION, consisting of 1,018 distinct entries, 6,000 specimens, of invertebrate fossils.

3. The ROMINGER COLLECTION, embracing about 5,000 species of invertebrate fossils, represented by at least 25,000 specimens. The collection contains (1) the types of all the palæozoic corals described by Dr. Rominger in the Geological Report of Michigan, volume iii.,—not alone the specimens figured, but numerous specimens of each species, which are not duplicates, but illustrations of different characters and varieties; (2) a collection of *Stromatoporoids*—probably the largest and finest in the world; (3) a similar collection of *Bryozoa*; (4) palæozoic fossils belonging to all the other classes; (5) European fossils of all classes and ages in large number—the sponges forming, with the American specimens, a collection of great interest. Since the purchase of this collection by the University, Dr. Rominger has added to it more than 250 species of invertebrate fossils, represented approximately by 1,000 specimens, among which there are many of great value.

4. SMITHSONIAN DEPOSITS, consisting, for the present, of a collection of specimens of foreign and domestic building stones, and twenty-three specimens of fossils from the Upper Missouri.

5. MISCELLANEOUS DONATIONS, COLLECTIONS, AND PURCHASES, including a series illustrative of the metalliferous regions of the Upper Peninsula, collected by the late Professor Winchell, an interesting collec-

tion of fossils, chiefly Cretaceous, from the Yellowstone Valley, presented by the late General Custer, U. S. A., and a series of six to eight hundred rock species and varieties from the Drift of Ann Arbor, collected, dressed to standard size and form, and presented by the late Miss Eliza J. Patterson. A collection of 150 specimens of ores and rocks has recently been presented by the U. S. National Museum.

The entire collection is estimated to contain approximately 17,000 entries and about 60,000 specimens, almost all of which are invertebrate fossils. The collections presented by the National Museum and by Professor Russell pertain to physical geology, and in the future an effort will be made to illustrate the physical history of the earth as thoroughly as its life-history is now shown.

The collection has recently been enlarged by the following donations, exchanges, etc., acknowledged in the Calendar for 1893-4: Five samples of novaculite, "whet-stone-rock," from Hot Springs, Ark., presented by J. J. Sutton; shrinkage cracks and ripple marks from Sault Ste. Marie, presented by Joseph Ripley; Cambrian trilobites from Utah, presented by E. S. Hinckley; fossil elk-horns and shell-marl presented by Professor J. B. Steere; skull of fossil beaver from Owosso, Mich., presented by A. G. Williams; bog iron ore, presented by F. L. Baker; loess from Kansas City, Mo., presented by J. P. Graves; stalactites from Luray Cavern, Va., presented by Lemuel Zerkel; shell-marl, presented by E. J. Hale; Coal Measure plants from Missouri, obtained by exchange from J. H. Britts; Tertiary fossils from Maryland and Virginia, obtained by exchange from Professor W. B. Clark; about 150 specimens illustrating physical geology, purchased from H. A. Ward.

During the past year the following gifts have been received:—

Four specimens of silicified tree-fern trunks, from the Carboniferous rocks of Ohio, presented by Dr. C. Rominger.

Well preserved vertebrate fossils, ammonites, and corals from Wyoming, from Capt. R. H. Wilson, U. S. A., Fort McKinney, Wyo.

Five specimens of paving blocks of trap and granite, from Dr. G. K. Dickinson, of Jersey City, N. J.

Siliceous concretions and a few fossils from Bayport, Mich., from Professor Russell.

The following collections have been received in exchange for duplicates:—

About 100 specimens of Palæozoic fossils from Wisconsin from the University of Wisconsin.

Fifty specimens of Tertiary fossils from Alabama, from the Geological Survey of Alabama.

Sixty specimens of Palæozoic fossils from New York, from Cornell University.

Samples of Eozoon, Carboniferous mollusks, and metamorphic rocks, from Canada, from McGill College.

Forty specimens of Clinton fossils from New York, from Hamilton College.

A small collection of Hamilton fossils from New York, from Colgate University.

About fifty species of Tertiary fossils from the Atlantic coast, samples of gneiss from New York city, and twelve samples of petroleum from as many localities in the United States, from the University of the City of New York.

Among the purchases recently made for the geological department are the following: twelve photographs of the glaciers of the Selkirk mountains, Canada; 183 lantern slides; samples of meteoric iron from Arizona; and several instruments used in geological field-work.

III. The ZOOLOGICAL COLLECTIONS are very large, comprising about 110,000 specimens under about 23,250 entries. There is a full series illustrative of the fauna of Michigan and other northern and western States. The animals of the Pacific coast are well represented in the collection made by Lieutenant Trowbridge, and large additions from foreign countries have been made through the medium of the Smithsonian Institution. A series of the valuable specimens collected in the Philippine Islands, by Professor Steere, in the years 1887 and 1888, now forms a part of the collection.

The BEAL-STEERE ZOOLOGICAL COLLECTION, made by Professor Steere in the years 1870 to 1876, comprises about 25,000 insects, 1,500 shells, 8,000 birds, and numerous representatives of other groups; total about 10,000 entries, 60,000 specimens.

IV. The BOTANICAL COLLECTION contains, in addition to Michigan plants collected by the public surveys, several valuable herbaria and sets of plants that have been presented to the University from time to time. Among these, some of the most important are the HOUGHTON HERBARIUM, the SAGER HERBARIUM, the AMES HERBARIUM, the HARRINGTON COLLECTION, the BEAL-STEERE BOTANICAL COLLECTION, the ADAMS-JEWETT COLLECTION, and the GARRIGUES COLLECTION, all of which have been described in Calendars of previous years.

Among the more recent acquisitions are a set of native woods of the United States, collected and presented to the University by Professor C. S. Sargent, Director of the Arnold Arboretum of Harvard University; a set of 3,000 species of North American fungi, presented by Mr. Joseph B. Whittier, of East Saginaw; and a set of specimens illustrating the flora of the Lake Superior region, presented by Mr. Frank A. Wood. Sections of representative specimens of the most important coniferous trees of the eastern United States have lately been secured through the courtesy

of Mr. B. E. Fernow, Chief of the Forestry Division of the U. S. Department of Agriculture.

The whole botanical cabinet contains about 70,000 specimens, representing 10,000 species under 20,000 entries.

INDUSTRIAL COLLECTIONS.

The nucleus of an industrial museum has long existed in the botanical and zoological cabinets, the cabinet of economic geology, the museum of applied chemistry, a collection of the seeds of cereals and other field and garden crops, and an interesting collection of textile fibres and various substitutes for cotton. The University is desirous of enlarging these collections.

CHINESE EXHIBIT.

In 1885 the Chinese Government presented to the University the exhibit which it sent to the New Orleans Exposition. The whole collection, numbering several thousand specimens, is now on exhibition in a room set apart for its reception in the museum building. It illustrates with special fulness the varieties of Chinese cotton, the Chinese processes of manufacturing cotton, and the finished products of cotton and silk. There are many articles showing the skill of the Chinese in working in wood, in ivory, and in porcelain, in embroidery, and in painting on glass and on silk.

CHEMISTRY AND PHARMACOGNOSY.

THE MUSEUM OF APPLIED CHEMISTRY comprises collections in educational chemistry, the chemical industries, pharmacy, and pharmacognosy. It occupies a floor space of 2,500 square feet in the chemical building, and is provided with permanent cases.

The principles of chemical science are illustrated by groups of synthetic products, as progressive formations, and by related compounds, both natural and artificial.

The chemical industries are represented by collections of the materials and the successive products of manufacture, and the resources and methods of industrial art. The outlines of chemical technology are presented with models and plans, giving object lessons in the modern production of alkalies and acids, dyes and pigments, soaps, distillates, etc.

In pharmacognosy, the collection of medicinal plants is extensive and well chosen for instruction both in botany and in commercial history. The crude drugs are displayed in comparison with their active constituents, each in its proportional quantity.

Pharmacy is exemplified in the preparations of the pharmacopœia and the appliances of skilful manipulation. A working prescription-stand of original design is included for the instruction of students.

Of all these collections a good share originates in the work of students engaged in special lines of study and research.

ARCHÆOLOGY AND ETHNOLOGY.

This department contains a collection of the arms, agricultural implements, carpenter's tools, musical instruments, and idols of the Chinese, belonging to the BEAL-STEERE COLLECTION, together with many articles of domestic and warlike use among the North American Indians and the Islanders of the South Pacific, numerous remains of the ancient Peruvians, and many specimens of clothing, art, etc., of the American Indians, modern Peruvians, Formosans, and natives of the East Indies and Alaska. The Chinese exhibit above referred to contains a large number of articles illustrative of ethnology. From the Smithsonian Institution there have been received a comprehensive collection of casts of objects from Europe and from the mounds of the Ohio valley, and a fine collection of pottery from the cliff dwellings of New Mexico and Arizona. The valuable collection made by the late David DePue, mostly from Washtenaw County, Mich., and a collection of flint implements from Denmark have recently been added.

THE FINE ARTS AND HISTORY.

The works of art belonging to the University are on exhibition in the galleries provided for them in the library building. A printed catalogue, prepared by Professor D'Ooge, contains fuller descriptions than can here be given. The collection was begun in 1855. It contains a gallery of casts, in full size and in reduction, of some of the most valuable ancient statues and busts, such as the Apollo Belvedere, the Laocoon, the Sophocles, a gallery of more than two hundred reductions and models in terra cotta and other materials; the statue of Nydia by Randolph Rogers; casts of modern statues, busts, etc., and reliefs; a number of engravings and photographic views, illustrating especially the architectural and sculptural remains of ancient Italy and Greece; a small collection of engraved copies of the great masterpieces of modern painting; two series of historical medallions—the HORACE WHITE COLLECTION, and the GOVERNOR BAGLEY COLLECTION—the former illustrative of ancient, mediæval, and modern European history, the latter designed to embrace the commemorative medals struck by order of Congress or other authorities, and now containing one hundred such medals; and a large collection of coins, chiefly Greek and Roman, presented to the University by the late Dr. A. E. Richards.

The ROGERS GALLERY comprises the entire collection of the original casts of the works of the late Randolph Rogers, more than a hundred in number. It was given by that distinguished sculptor to the State of Michigan for the University museum.

The late Henry C. Lewis, of Coldwater, by his will bequeathed to the University his valuable collection of works of art comprising about six

hundred and fifty paintings and forty pieces of statuary. The collection remains for the present at Coldwater, but will ultimately be transferred to the University gallery.

THE LABORATORIES.

In the several laboratories of the University opportunities are provided for practical instruction in physics, chemistry, geology, zoology, psychology, botany, engineering, histology, physiology, hygiene, pathology, anatomy, and dentistry. The laboratories used chiefly by students of medicine and of dentistry are described in the chapters devoted to the medical and the dental schools.

PHYSICAL LABORATORY.

The physical laboratory contains about 11,000 square feet of floor space. The basement, which is devoted entirely to experimental work in electricity and magnetism, has a German rock-asphaltum floor, with heavy stone-capped piers in every work room. The engine room contains a 10' by 14' Russell horizontal engine with countershaft and friction clutch, an Edison shunt-wound dynamo of 5,000 watts capacity, a Sperry and a Brush 10-arc-light machine, with lamps for both, a Gramme machine of 5,000 watts made in 1877, a Fort Wayne 300-light alternator, with converters and all the appliances for a complete alternating plant, and a Fisher 225-light constant-potential machine. In an adjacent room are placed electro-dynamometers, ammeters, voltmeters, a wall resistance of iron wire constructed to absorb about 35 H-P of electrical energy, and a bank of 225 incandescent lamps. The photometric room, with blackened walls, and lighted only artificially, is also adjacent to the engine room.

A battery room, well ventilated and lighted, and supplied with water, contains a storage battery of seventy-four cells. Five smaller work rooms are fitted with the usual appliances for electrical measurements.

On the first floor are a commodious lecture room, an apparatus room, a general laboratory for elementary work, a balance room, a mercury room, and two rooms for a private laboratory.

The laboratory is supplied with the most modern apparatus from the best American and European makers. In sound, it includes tuning forks and resonators from Koenig of Paris; in light, a spectrometer with 12-inch divided circle, an ophthalmoscope from the Geneva Society, an optical bench, with accessories, from Duboscq, a Zeiss focometer, and a polarimeter from Schmidt and Haensch; in electricity, galvanometers and resistance boxes, up to 250,000 units, from Edelmann, Hartmann & Braun, Elliott Brothers, Nalder Brothers & Co., and Queen & Co., be-

sides condensers, voltmeters, and ammeters; also Lord Kelvin's graded galvanometers, a centi-ampere, a deci-ampere, and a deka-ampere balance made by White, of Glasgow. Among the standards are standard cells, a standard 100-ohm, a 10-ohm, and three 1-ohm coils, two standard condensers, and Ayrton and Perry's standard of self-induction, with a secohmmeter by Nalder Brothers.

The work in the laboratory is entirely quantitative in character, but provision has been made for illustrating the general principles of physics in the lecture courses.

CHEMICAL LABORATORIES.

The chemical laboratories provide for classes in analytical, general, and organic chemistry, in pharmacy and chemical technology, in metallurgy, and in assaying. Opportunities are given for original research in the several branches of chemical science and for independent investigations. In the course of the year, classes are formed in thirty-eight distinct courses of study. In the greater number of these courses the method of work combines training in laboratory operations with study for recitations and instruction by lectures,—the three requirements being united in one course.

The chemical building contains in all about 37,000 square feet of floor space. Besides the rooms for recitations, storage, administration, etc., the laboratories for students have an area of about 25,000 square feet.

The laboratory of general chemistry is separately organized and supplied. Courses in elementary inorganic chemistry, as well as in the advanced branches of the science are offered; research work both in inorganic and in organic general chemistry is also arranged for a limited number of students. Modern apparatus is provided for all the varieties of work that are liable to be undertaken.

The laboratories of analytical chemistry, organic chemistry, pharmacy, and chemical technology are all under one organization and are supplied in common. There are separate work rooms for qualitative analysis, quantitative analysis, iron and steel analysis, pharmaceutical preparations, organic preparations, organic analysis, medical chemistry, and assaying of ores,—as well as rooms for the weighing-balances and instruments of precision, for gas analysis, and for optical work. There are separate rooms for original research. The building contains two lecture rooms, two recitation rooms, and a museum with collections for instruction in chemistry, pharmacy, pharmacognosy, and chemical technology. In the ventilation of the work rooms the supply of fresh air is enforced by driving fans, and the removal of foul air is effected by strong draught flues, with which, also, work-hoods are connected.

The chemical laboratories are open throughout the college year to all students of the University, and are regularly used by all departments

except the Department of Law. They are also open to any person who wishes to pursue special studies therein, provided he complies with the conditions for admission to that department of the University to which the desired special studies properly belong.

Three hundred and eighty students are engaged in these laboratories at the same time, each at a table provided for one worker. During the year, from 600 to 800 students complete from one to four courses of study each in the various branches of chemistry. The students engage in chemical work as it is needful for their different purposes,—the pursuit of science, or the preparation for teaching, for the several professions applying chemistry, and for the various chemical arts and industries.

GEOLOGICAL AND ZOOLOGICAL LABORATORIES.

Opportunity for practical work in geology and zoology is provided in rooms set apart for this use in the museum building. The rooms are furnished with microscopes, photographic instruments, cutting and polishing lathes, and other apparatus for the preparation of specimens. Special encouragement and assistance are given to students wishing to carry on original investigations.

BOTANICAL LABORATORY.

In the botanical laboratory instruction is given in the practical study of the structure, development, and physiology of plants, and opportunity is offered for investigation in cellular biology in embryology and development, in some provinces of physiology, and in pathology.

The laboratory is provided with microscopes, microtomes, means for embedding, stains, reagents, aquaria, Wardian cases, klinostat, auxanometer, self-registering apparatus, sterilizers, and facilities for making pure cultures of algæ and fungi. There is a good working library in the laboratory containing, besides many monographs, the leading French, German, and English periodicals.

Students in the more elementary courses have constant personal assistance and direction from the instructors; the advanced courses require more independent work. Every facility within the means at command will be provided for those capable of doing work in research.

LABORATORY OF ANIMAL MORPHOLOGY.

The laboratory of animal morphology consists of nine rooms, with about 4,000 square feet of floor space, and is lighted by twenty-nine windows. There is a large room for the elementary work of students, and a smaller room for more advanced work in vertebrate morphology. These two rooms accommodate about fifty students at one time. There is a room for the housing of small mammals, a room for the storage of alcoholic material, and a room in which a reference library is shelved. The

professor in charge has a private room; and four smaller rooms, each accommodating one or two persons, are used by the instructors and by students engaged in investigation. The rooms are provided with water and gas, and are fitted with tables specially designed for the work.

Suitable provision has been made for the study of animals inhabiting the neighboring waters. There are four aquaria (the largest seven feet long), and there are arrangements for maintaining thirty smaller aquaria for the rearing of embryos and the study of isolated forms.

There is a good equipment of microscopes, including a Zeiss microscope with apochromatic lenses, and of microtomes and accessory apparatus. For illustrative purposes, there is a collection of alcoholic specimens (many of them from the Naples Zoological Station), a set of Leuckart and Nitsche's wall charts, of Ziegler's wax models, and a small collection of Blaschka's glass models.

PSYCHOLOGICAL LABORATORY.

The psychological laboratory consists of two rooms, one 30 by 20 feet, with a 500-volt motor running the color mixer and kymograph, and one room 9 by 20 feet containing the Hipps chronoscope, large Auzoux models of the brain and sense-organs, and instruments for optical, acoustical, temperature, and tactile experiments, with apparatus for general experimental work.

Individual and mass experiments are conducted, with opportunities for demonstration courses and for original research in the psychology of speech, the time-sense, attention, association, memory, and æsthetics. Personal supervision of each student's work is supplemented by lectures on the history and method of experimental psychology.

ENGINEERING LABORATORY.

The Engineering Laboratory contains about 20,000 square feet of floor space. It is divided into rooms as follows:

The *Mechanical Laboratory*, 40 by 80 feet, is devoted to experimental work in connection with the testing of engines, boilers, pumps, indicators, belting, gearing, lubricants, and strength of materials and to such original work as can be undertaken with advantage. The work also extends to the testing of engines, boilers, and water-wheels of neighboring mills and electric plants. The Knowles and the Gordon pumping engines at the City Water Works have been fitted up by the company with especial reference to the convenience of engineering students in making tests. The equipment contains, among other things, a 100,000-pound Olsen testing machine; a 2,000-pound cement testing machine; Thurston and Ashcroft oil-testing machines; a Stirling boiler for high pressure; a high speed automatic engine; a Corliss engine; a Rider hot air engine; Wheeler and Wainright surface condensers; an Alden absorption dynamometer; a

Giddings traction recording dynamometer; an Emerson power-scale; several other forms of dynamometers; a large, electrically driven chronograph, built in the laboratory; a 36-foot open mercury column; special apparatus for testing pressure and vacuum-gauges and indicator springs; gauges; indicators; thermometers; pyrometers; tachometers; standard weights; steam pumps and injectors; rotary and centrifugal pumps; water meters; water motors, including a special universal water motor, built in the laboratory, together with pressure tanks and pumps for testing motors; hydraulic rams; water-wheels; air pumps; blowers; apparatus for making tests on radiators and pipe coverings; apparatus for furnace gas analysis; a street railway motor; and other apparatus having special reference to work of investigation.

The *Iron Room*, or machine shop, and the *Wood Room*, or pattern shop, each 40 by 80 feet, contain the tools and apparatus usually found in first-class establishments, including special tools built in the laboratory. The pattern loft, 40 by 80 feet, contains a fine collection of patterns made in the laboratory.

The *Forge Shop*, 30 by 40 feet, is equipped with twelve forges, built in the laboratory. The blast is supplied by a No. 4 Sturtevant pressure blower, and the smoke is carried away by a No. 31 exhaust fan.

The *Foundry*, 30 by 40 feet, contains a 27-inch cupola, brass furnaces, and a core-oven; the blast is supplied by a No. 3 Sturtevant pressure blower.

The central wing, 32 by 54 feet, contains, on the first floor, a well-ventilated wash-room, with closets and other conveniences, an engine room with a 10 by 30 Reynolds-Corliss engine, and superintendent's office; on the second floor a well-lighted drawing room and a blue-print room. The basement and attic are used for storage. The tower, at an elevation of 75 feet, contains a tank of 100 barrels capacity for experimental work in hydraulics; also a mercury column and other apparatus.

New machinery is added to each shop from time to time for the accommodation of engineering students and others desiring instruction and practice in the use of tools for working in wood and metal. At the same time opportunity is afforded them to become familiar with the more common materials and forms of construction used in engineering structures, buildings, and machinery. In all work an effort is made to follow the practice of the best shops.

The instruction in all practical work is given by men of wide experience, selected for their mechanical skill.

THE HOSPITALS.

The new hospitals afford ample facilities for clinical instruction. The University Hospital is under the direction of the Faculty of the Depart

ment of Medicine and Surgery; the Homœopathic Hospital is in charge of the Faculty of the Homœopathic Medical College. Further information in regard to the hospitals is given in connection with the descriptions of the medical schools.

AIDS TO MORAL AND RELIGIOUS CULTURE.

The Students' Christian Association, which has a large membership, holds stated meetings, either for religious or social improvement. Through the enterprising efforts of the Association and the benevolence of those interested in its aims, a spacious and beautiful building, called Newberry Hall, has been erected for its use adjacent to the University Campus.

The churches of the city of Ann Arbor are cordially thrown open to the students, whose interests are largely consulted by the pastors in their pulpit instruction and in their plans of work. There are churches of the following communions in the city: Baptist, Congregationalist, the Disciples, German Lutheran, German Methodist, Methodist Episcopal, Presbyterian, Protestant Episcopal, Roman Catholic, and Unitarian.

Guilds, and other societies, consisting chiefly of students, have been organized in several of the churches both for religious and moral culture and for social entertainment. The Hobart Guild, connected with St. Andrew's Church (Protestant Episcopal), has a commodious building, called Harris Hall (formerly known as Hobart Hall), planned and equipped for all the objects of the Guild; and two of the several lectureships contemplated in its plans have been endowed, the Baldwin Lectures for the Establishment and Defence of Christian Truth, and the Charlotte Wood Slocum Lectureship on Christian Evidences. The Tappan Presbyterian Association now occupies its new building, known as McMillan Hall; it owns a theological library of several thousand volumes, and maintains annual courses of lectures upon church history and church work. The Methodist Episcopal church has organized the Wesleyan Guild, and has made the beginning of a permanent fund for the support of a special lectureship. Unity Club is a society formed by the Unitarian church with similar purposes. The Foley Guild is an organization of Roman Catholic students under the patronage of the Rt. Reverend John S. Foley, bishop of the diocese. The society organized in connection with the Church of the Disciples is called the Inland League.

FACILITIES FOR PHYSICAL CULTURE.

The Waterman Gymnasium.—The University is now provided with an excellent gymnasium which has cost about \$65,000. Of this sum \$20,000 was given by the late Joshua W. Waterman, of Detroit, in

honor of whom the building is named, about \$26,000 was raised by private subscription, and \$6,000 was turned over by the trustees of a fund that has been accumulated in recent years through the efforts of students. The main floor, which is a rectangle with truncated corners and dimensions of 150 by 90 feet, is well supplied with the various kinds of apparatus usually found in the best modern gymnasiums. A number of smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths, lockers, and bowling alleys. The main hall is lighted in the daytime by means of a large skylight 60 feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running-track 375 feet in length.

In the conduct of the gymnasium the aim is not so much the development of a few gymnastic experts as the provision of wholesome physical exercise for the many. Thus far the work has been voluntary. The facilities of the building, including physical examinations and instruction, are free to all students, the only charge being a rental of \$2 a year for a locker. Pending the completion of a separate wing for women, the present gymnasium is reserved for their exclusive use during the forenoon hours of each day.

Supervision of Athletics.—A level field of ten acres, owned by the University and situated a few minutes walk southward from the campus, has been set apart and equipped especially for open-air sports. The campus itself still provides room for tennis-courts and also for a small practice-ground close by the gymnasium. The general supervision of athletic sports is vested in a committee of nine, consisting of five professors elected annually by the University Senate, and four students chosen by the Students' Athletic Association. The Board of Control thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see to it that play shall not encroach too much upon the claims of work. For the furtherance of these ends certain specific rules and regulations have been adopted, a copy of which can be had on application to the Steward of the University.

UNIVERSITY ORGANIZATIONS.

Lecture Association.—The Students' Lecture Association provides each year, at a low price for admission, an attractive series of lectures and musical entertainments.

Choral Union.—The Choral Union is an organization of students and others, for the study and practice of choral music under the direction of the Professor of Music in the University, and for the promotion of general musical culture. Under its auspices, and with the cooperation of the University Musical Society,* the following course of concerts is announced for the year 1894-95:

- I. Theodore Thomas's Chicago Orchestra.
- II. Piano Recital: Alberto Jonas.
- III. Choral Union Concert.
- IV. Song Recital: Mr. and Mrs. Max Heinrich.
- V. Symphony Concert.
- VI. Orchestral Matinee.
- VII. The Damnation of Faust.

The Columbian Exposition Organ, which has been purchased for the University and is to be known as the Frieze Memorial Organ, in memory of the late Professor Henry Simmons Frieze, will be used in this course of concerts.

Oratorical Association.—The Oratorical Association was organized by students of the Department of Literature, Science, and the Arts, and of the Department of Law, under the guidance of the Professor of Elocution and Oratory, to foster an interest in oratory, and also to take part in the contests of the Northern Oratorical League, which includes student organizations in five leading western institutions. At the annual contests of the Association the students who take the first and the second rank receive testimonials of seventy-five and fifty dollars respectively, and are designated to represent the University in the annual contests of the League. In addition to the above testimonials the League offers one hundred dollars and fifty dollars respectively to the students who are awarded the first and the second honor in the contests of that organization. These contests are not open to any person who has received a bachelor's degree.

In 1891 the first and second honors of the Oratorical Association were awarded respectively to Austin Carlos Gormley† and William Byron Kelly; in 1892, to Jesse Elmer Roberts and Newton Jasper McGuire; in 1893 to Linley Grant Long† and James Brannan Nelson; in 1894, to Frank Prather Sadler† and Byron Lee Oliver.

* The University Musical Society is a body corporate under the laws of the State of Michigan. It has no organic connection with the University, though its membership is restricted to past and present University officers and students. This Society has established the University School of Music in Ann Arbor, in which systematic instruction is given in vocal and instrumental music, such as the University cannot undertake to provide. Catalogues of the school can be had by applying to Professor A. A. Stanley.

†Also received first honor in the Oratorical League.

The Chicago Alumni Medal.—The Chicago Alumni Association of the University of Michigan offers annually a gold medal for excellence in oratory. This medal, designed by Mr. Louis H. Sullivan, of Chicago, is to be given to the student who is awarded the first honor in the annual contest of the University Oratorical Association. They furthermore contribute fifty dollars a year to be applied upon the testimonial offered by the Oratorical Association to the student receiving the highest rank in the annual contest.

Other Organizations.—There are several organizations, composed of University officers and students, whose chief objects are the reading of papers and the holding of conferences on topics of interest that do not fall within the scope of ordinary class-room work; but some of them also aim to secure each year speakers of prominence to give public addresses on subjects germane to the purpose of the Society. Among these organizations the following may be mentioned: the Engineering Society; the Philological Society; the Philosophical Society; the Mathematical Club; and the Political Science Association.

The students in the Department of Law arrange annually for a celebration of Washington's birthday. The address in 1894 was given by Hon. Jonathan P. Dolliver, of Fort Dodge, Iowa.

RELATION OF STUDENTS TO THE CIVIL AUTHORITIES.

Students are temporary residents of the city, and, like all other residents, are amenable to the laws. If guilty of disorder or crime, they are liable to arrest, fine, and imprisonment. A rule of the University Senate provides that if a student is arrested, or is convicted by the civil authorities, he shall be cited to appear before the Faculty of the department in which he is matriculated, and shall be liable to suspension or expulsion.

FEEES AND EXPENSES.

Matriculation Fee.—Every student before entering any department of the University is required to pay a matriculation fee. This fee, which, for citizens of Michigan, is ten dollars, and, for those who come from any other State or country, twenty-five dollars, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Annual Fee.—In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses. This fee is paid the first year of residence at the University, and every year of residence thereafter. Resident graduates are required to pay the same annual fee

as undergraduates. The annual fee in the several departments of the University is as follows:

Department of Literature, Science, and the Arts: for Michigan students, twenty-five dollars; for all others, thirty-five dollars.*

Department of Medicine and Surgery: for Michigan students, thirty dollars; for all others, forty dollars.

Department of Law: for Michigan students, thirty dollars; for all others, forty dollars.

School of Pharmacy: for Michigan students, thirty dollars; for all others, forty dollars.

Homœopathic Medical College: for Michigan students, thirty dollars; for all others, forty dollars.

College of Dental Surgery: for Michigan students, thirty dollars; for all others, forty dollars.

The matriculation fee and the annual fee must be paid at the beginning of the college year. A by-law of the Board of Regents provides that no student or graduate shall be allowed to enjoy the privileges of the University until he has paid all fees that are due.

Laboratory Expenses.—Students who pursue laboratory courses of study are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance are different for the different courses, ranging from one to twenty dollars. The laboratory expenses of students will vary with their prudence and economy. Experience has shown that in the chemical laboratory the average expense for all courses is about one dollar and twenty cents a week.

Diploma Fee.—The fee for the diploma given on graduation is ten dollars, and the by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the fee for diploma.

Other Expenses.—Students obtain board and lodging in private families for from three to five dollars a week. Clubs are also formed in which the cost of board is from one dollar and a half to two dollars and a half a week. Room rent varies from seventy-five cents to two dollars a week for each student. The annual expenses of students, including clothing and incidentals, are, on the average, about three hundred and seventy dollars. The University does not undertake to furnish manual labor to students; yet a few find opportunities in the city for remunerative labor.

There are no dormitories and no commons connected with the University. Students on arriving in Ann Arbor can obtain information in regard to rooms and board by calling at the Steward's office.

*An annual fee of ten dollars is required from all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia*.

Department of Literature, Science, and the Arts.

THE Department of Literature, Science, and the Arts owes its name to a provision in the legislative act under which the University was organized in the year 1837. It provides for collegiate and technological lines of university work, as distinguished from the work of the professional schools in medicine, law, pharmacy, and dentistry. The courses of instruction are arranged to meet the wants not only of such as are fitted to take up a systematic course of study in the classics, or in science, but also for those whose preparatory studies have not included any ancient or foreign language. Special students, who wish to pursue miscellaneous studies, are admitted on conditions stated on page 45.

The Graduate School established in connection with this department is under the direction of an Administrative Council, appointed from the Faculty of the department.

The academic year extends from the first day of October to the Thursday following the last Wednesday in June.

ADMISSION OF UNDERGRADUATES.

Candidates for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from their last instructor, or from the last institution with which they have been connected.

Unless admitted on diploma from an approved school (see page 46), any student who desires to become a candidate for a degree must pass examinations in some one of the

groups of subjects described below; the group being determined by the character of the work he intends to pursue, and the degree he desires to take. Before entering upon the examination each candidate must present his credentials to the President at his office.

For admission to advanced standing, see page 44.

For admission of students not candidates for a degree, see page 45.

THE DEGREE OF BACHELOR OF ARTS.

Candidates for admission to the course leading to the degree of Bachelor of Arts will be examined in the following subjects:

i. English Language, Composition, and Rhetoric.

a. Grammar.—Selections for analysis and parsing will be set, arranged to test the candidate's knowledge of the leading facts of English Grammar. To meet this requirement, a review of the subject should be had during the last year of the preparatory course.

b. Composition and Rhetoric.—The purpose of the examination in composition is to test the candidate's ability to write good English. To this end he will be asked to write two essays of not less than two hundred words each, one upon a subject drawn from the books mentioned below, and the other upon a subject drawn from his experience or observation. The language of these essays must be grammatical and clear. The spelling, punctuation, and capitalizing must be correct. The candidate must show ability to discriminate in the use of words and to construct well-organized sentences and paragraphs. A topical outline should accompany each essay.

As preparation for this requirement, sustained and regular practice in writing is earnestly recommended. The candidate should prepare numerous written exercises throughout the four years of the high school course, and a sufficient number of these exercises should be corrected by the teacher and revised by the student to secure the desired accuracy. The subjects upon which the student writes should not be drawn exclusively from literature; a considerable proportion of them should be taken from the student's every-day experience; and topics should be so distributed as to give proper training in the various types of discourse, namely, description, narrative, argument, and exposition. The candidate should be grounded in the essentials of rhetoric, but those principles should receive emphasis which are most likely to be of service to him in his practice in writing, such as the principles of sentential structure, paragraphing, and the outlining of the essay. The correction of stock specimens of bad English is not recommended, and will form no part of the entrance requirement.

It is further recommended that the reading of English classics and the memorizing of notable passages, both in prose and poetry, should form a regular exercise throughout the whole preparatory period. This is all-important for the development of a correct taste in language and literature. These readings should

be connected, in reasonable measure, with the lives and characters of the authors read and with the history of their times. A good knowledge of the chronological order and of the leading characteristics of the principal modern English writers should be aimed at. Care should be taken not to overload the text of these classics with a mass of irrelevant and petty learning. Many of the "school classics" now in use are over-edited.

The books, from which subjects for compositions will be chosen in the years named, are here given. The candidate should make himself familiar with the plot, incidents, and characters of each work. Equivalents will be accepted.

1895. Shakespeare's *Timon of Athens*, or *Twelfth Night*; Scott's *The Abbot*, or *Ivanhoe*; Dickens's *Martin Chuzzlewit*; Blackmore's *Lorna Doone*; Goldsmith's *The Vicar of Wakefield*; Macaulay's *Lays of Ancient Rome*.

1896. Shakespeare's *A Midsummer Night's Dream*, or *The Merchant of Venice*; Defoe's *Journal of the Plague Year*; Scott's *Woodstock*; Longfellow's *Evangeline*; George Eliot's *Silas Marner*; Irving's *Tales of a Traveller*.

1897. Shakespeare's *As You Like It*, or *The Merchant of Venice*; Defoe's *Journal of the Plague Year*; Scott's *Marmion*; Longfellow's *Evangeline*; George Eliot's *Silas Marner*; Irving's *Tales of a Traveller*.

1898. Milton's *Paradise Lost*, Books I and II; Pope's *Iliad*, Books I and XXII; Goldsmith's *The Vicar of Wakefield*; Southey's *Life of Nelson*; Lowell's *The Vision of Sir Launfal*; Hawthorne's *The House of Seven Gables*.

2. History.—Myers's General History (or in its stead, that portion of Myers's History of the Eastern Nations that treats of Greece, together with Allen's or Leighton's History of Rome); and the History of the United States as far as the close of the Revolutionary War.

3. Mathematics.—*Algebra*.—Fundamental Rules, Fractions, Simple Equations, Involution and Evolution, the Calculus of Radicals, and Quadratic Equations, as given in Olney's Complete School Algebra, or an equivalent in other authors.

Geometry.—Plane, Solid, and Spherical Geometry, as given in Olney's New Elementary Geometry, or an equivalent in other authors.

N. B.—It is very desirable that High Schools whose graduates are received on diploma arrange their courses so as to include a portion of both Algebra and Geometry in their last preparatory year; and it is equally important that other students should do the same if they expect to succeed in the study of mathematics in the University.

4. Physics.—An amount represented by Carhart and Chute's Elements of Physics. Laboratory work in physics is urgently advised, though not required; but students who have completed a course in laboratory practice, may expect to derive advantage from it if they take work in the physical laboratory in the University (see p 79).

5. Botany.—Practical exercises in the study of common plants, so conducted as to secure a familiar acquaintance with the essential facts of vegetable morphology, physiology, and relationship. The method pursued in Spalding's Introduction to Botany will indicate the kind of work desired.

The examinations will include,—

a. Description of indigenous species, by which the candidate's knowledge of organography and his facility in the use of the descriptive language of the science are tested.

b. Classification, including particularly the recognition at sight of important natural orders and large groups, with a practical knowledge of their botanical characters.

c. An account of physiological adaptations. The student is expected to know, from personal observation, something of the relations of flowers and insects, the dissemination of seeds, protective arrangements, and related subjects.

The limited time usually given to Botany in the preparatory schools, often with insufficient material, renders it specially desirable that all who expect to continue this subject in the University should give some additional time to it during the summer vacations, when plants are easily procured, and there is better opportunity for independent observation.

6. Latin.—*Grammar.*—A thorough preparation in the elements of Etymology, Syntax, and Prosody.

Prose Composition.—Candidates will be asked to translate into Latin a passage of connected English narrative, based upon some portion of the Caesar or Cicero read. As a text-book, Jones's, Collar's, or Daniell's is recommended.

Reading.—Four books of Caesar's Gallic War; six select orations of Cicero; and nine books of Virgil's *Æneid*. For books 7-9 of the *Æneid*, 1,500 lines of Ovid may be substituted. The books named may serve to indicate the amount and kind of text that may most profitably be made the basis of a thorough study in preparing for the work of the University. It should be remembered that the University desires *mastery of Latin*; the choice of selections studied is of secondary importance. Candidates for admission in Latin will be tested in the interpretation of passages of moderate difficulty outside the range of works commonly used in preparatory schools.

Four years of daily recitation should be given to the preparatory work in Latin. Special care should be taken with the training in Prose Composition. It is hoped that many schools will continue, as heretofore, to prepare students in the whole of the *Æneid*, or an equivalent. Students entering with this preparation will receive a certain amount of credit toward graduation.

The Roman method of pronouncing Latin is used at the University.

7. Greek.—*Grammar.*—Goodwin's or Hadley's. The inflections must be thoroughly mastered.

Prose Composition.—Jones's Exercises, with special reference to the

writing of Greek with the accents, and to the general principles of syntax. Woodruff's Greek Prose Composition is taken as an equivalent.

Reading.—Three books of Xenophon's *Anabasis*.

The so-called continental sound of the vowels and diphthongs, and pronunciation according to the written accents, are preferred. In preparation, Boise's *First Lessons in Greek*, or White's *Beginner's Greek Book*, will be found valuable.

Two full years of daily recitation ought to be given to preparation in Greek.

THE DEGREE OF BACHELOR OF PHILOSOPHY.

Candidates for admission to the course leading to the degree of Bachelor of Philosophy will be examined in all the subjects required for the admission of candidates for the degree of Bachelor of Arts, excepting what is required in Greek and in Grecian History (see pages 39, 40), and also in French or in German, the same as for the degree of Bachelor of Science (see below).

THE DEGREE OF BACHELOR OF SCIENCE.

Two groups of requirements for admission of candidates to the courses leading to the degree of Bachelor of Science are given below:—the first for students who intend to complete the requirements for graduation in General Science, in Chemistry, or in Biology, as given on subsequent pages; the second for students who intend to pursue courses in Civil, Mechanical, Mining, or Electrical Engineering.

I. THE COURSE IN GENERAL SCIENCE, IN CHEMISTRY, OR IN BIOLOGY.

Candidates for admission will be examined in the following subjects:

1. English Language, Composition, Rhetoric, and Mathematics.—In all, the same as for the degree of Bachelor of Arts (see pages 38, 39).

2. History.—Myers's *General History*, or an equivalent; and the *History of the United States* as far as the close of the Revolutionary War.

3. French, German, and Latin.—Candidates may offer either French and German, French and Latin, or German and Latin, two of these three languages being required. The requirements in each are as follows:

French.—The whole subject of French Grammar. The candidate will be expected to read at sight easy French, and to translate correctly into French simple English sentences. Two years ought to be given to this study, the first year being spent on the grammar, and the second devoted to reading good modern French, accompanied by grammatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose; modern, rather than classic, dramas should be read.

German.—(1) Ability to pronounce German correctly and to read it

fluently with the proper intonations. (2) Thorough familiarity with the every-day facts of the grammar, to be evinced by putting illustrative English phrases and sentences into German. (3) Sufficient miscellaneous prose reading—say four hundred pages—so that the candidate will be able to construe at sight, and put into good English, a passage of moderately difficult German prose, either narrative or dialogue. (4) A careful study of one classical drama, Schiller's *Tell* being recommended. A full description of what the University regards as the best preparatory course in German, with suggestions as to text-books, methods, etc., was published in No. 3, of vol. II., of the *University Record*, which will be sent on application.

Latin.—Jones's First Latin Book, or an equivalent amount in any other introductory text book; four books of Caesar's Gallic War, and one of the orations of Cicero. It is expected that at least two years will be given to preparation in Latin.

4. Physics and Botany.—In both, the same as for the degree of Bachelor of Arts (see pages 39, 40).

5. Chemistry, Geology, Zoology, Physiology, Physical Geography, and Astronomy.—The candidate may offer any *two* of these subjects. The requirements, intended to cover a half-year's work in each subject, are as follows.

Chemistry.—Remsen's Briefer Course, or an equivalent.

Geology.—Winchell's Geological Studies.

Zoology.—Packard's Zoology, Briefer Course, or Nicholson's Manual of Zoology.

Physiology.—Martin's The Human Body, Briefer Course.

Physical Geography.—Hinman's Eclectic Physical Geography, or an equivalent.

Astronomy.—Newcomb and Holden's Astronomy, Briefer Course, Young's Elements of Astronomy, or an equivalent. A knowledge of the principal constellations is required.

II. THE COURSES IN ENGINEERING.

Candidates for admission will be examined in the following subjects:

1. English Language, Composition, and Rhetoric.—The same as for the degree of Bachelor of Arts (see page 38).

2. Mathematics.—*Algebra and Geometry*.—The same as for the degree of Bachelor of Arts (see page 39).

Trigonometry.—Plane Trigonometry as given in Olney's Elements of Trigonometry, or an equivalent in other authors. A candidate who has had no opportunity for preparation in Trigonometry may be admitted, if satisfactory examinations are passed in the other subjects, but he will be *required to make up the deficiency by extra work in the University classes in that subject.*

3. **History.**—The same as for the course in General Science (see page 41).

4. **Physics.**—The same as for the degree of Bachelor of Arts (see page 39).

5. **English Literature.**—The same as for the degree of Bachelor of Letters (see below).

6. **Chemistry, Geology, Zoology, Physiology, Physical Geography, and Astronomy.**—In any *two* of these subjects (see page 42).

7. **French, German, or Latin.**—In 1895 and thereafter candidates will be examined in *one* of these three languages, *French, German, or Latin*, the extent of the requirement in each case being the same as for the course in General Science (see page 41).

THE DEGREE OF BACHELOR OF LETTERS.

Candidates for admission to the course leading to the degree of Bachelor of Letters will be examined in the following subjects:

1. **English Language, Composition, and Rhetoric.**—The same as for the degree of Bachelor of Arts (see page 38).

2. **English Literature.**—Daily recitations for at least one year will be requisite. Stopford A. Brooke's Primer, or any other manual may be used for an outline of the subject. As much time as practicable should be given to the careful reading of representative authors in each period.

3. **Mathematics.**—The same as for the degree of Bachelor of Arts (see page 39).

4. **Physics and Botany.**—In both, the same as for the degree of Bachelor of Arts (see pages 39, 40).

5. **Chemistry, Geology, Zoology, Physiology, Physical Geography, and Astronomy.**—In any *three* of these subjects, the same as for the degree of Bachelor of Science (see page 42).

6. **History.**—Myers's General History, or an equivalent, Johnston's History of the United States, and Ransome's History of England.

7. **Civil Government.**—Fiske's Civil Government, Hinsdale's American Government (Parts I and II, especially the large print), or an equivalent.

8. **French, German, or Latin.**—In place of the *English History* and the *three optional sciences* specified above, the candidate for admission may present *French, German, or Latin* in amount equal to that exacted of candidates for the degree of Bachelor of Science (see page 41). This means about two years' study in some one of these three languages.

With respect to the option here allowed, it may be observed that inasmuch as a large part of the work required in the University for the degree of Bachelor of Letters consists of French and German, students who intend to take this degree will find it advantageous to begin at least one of these languages in their preparatory course.

ADMISSION TO ADVANCED STANDING.

1. Students who have completed at least one year's college work in an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to their good character, will be admitted to advanced standing without examination, except such as may be necessary to determine what credit they are to receive for work done in the college from which they have come. Students coming from colleges whose requirements for admission are substantially equivalent to those of this department of the University may thus expect to be able to go on with their work without loss of standing.

2. Students who have not completed at least one year's college work in an approved college, but who, previously to entering this department of the University, have pursued studies beyond those required for admission, may be admitted to advanced standing on passing examinations in the studies prescribed for admission to the course they wish to pursue, and also in such undergraduate studies as they may ask to be credited with in advance. The examination for advanced standing, however, may be waived in the case of studies pursued in a graduate course by graduates of a diploma school, provided the work of such graduate course has been inspected and approved by the Faculty.

3. Rules relating to admission to advanced standing:

a. All students, whether candidates for a degree or pursuing select studies, who apply for advanced standing must present to the Registrar a statement showing the amount of work done in the subjects in which credit is asked.

b. No credit will be given in any subject for high school work unless the subject has been pursued in the high school for at least one year.

c. The application for advanced standing should be made to the Registrar immediately after matriculation;

and the Registrar will furnish a blank form for presentation to the professors in charge of the several subjects named in the blank.

d. Credits must be secured before the beginning of the holiday vacation in December or (if the candidate be matriculated after that date) before the beginning of the spring recess in April.

e. No credits will be given for advanced standing after the dates named in (*d*).

f. An account once closed cannot be reopened without special permission of the Faculty.

ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE.

Persons who desire to pursue studies in this department, and do not desire to become candidates for a degree, will be admitted on the following conditions:

1. All persons under twenty-one years of age must pass the entrance examinations required of candidates for some degree, as described on pages 37 to 43.

2. Persons over twenty-one years of age must show that they have a good knowledge of English and are otherwise prepared to pursue profitably the studies they may desire to take up.

3. Should a student who enters under the preceding provision (2) subsequently become a candidate for graduation, he must pass all the examinations for admission required of such a candidate, at least one year previous to the time when he proposes to graduate.

4. Students not candidates for a degree who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

TIMES OF EXAMINATIONS.

An examination for admission to the Department of Literature, Science, and the Arts, will be held on Saturday and Monday, June 22 and 24, 1895, and another beginning on Monday, September 23, and continuing through the Tues-

day, Wednesday, Thursday, and Friday following. The examinations will begin at nine o'clock A. M. of each day. Candidates may take their examinations at either of these times, or may take a part in June and a part in September. In either case it is particularly desired that they present themselves on the first day of the examination.

At the June examination the subjects for Saturday will be: Mathematics, Greek, Latin, French, German, Botany, Zoology, Physiology, Astronomy, Physical Geography, Geology. For Monday: Latin Prose Composition, English, English Literature, History and Civil Government, Physics, Chemistry.

In September the examinations will be conducted in accordance with the following scheme:

	MONDAY.		TUESDAY.		WEDNESDAY.		THURSDAY.		FRIDAY.	
	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.
Mathematics.....	9 00	2 00	9 00	2 00	....	....	9 00	2 00	9 00	....
Greek.....	9 00	3 00	....	....	....	....	9 00	....
Latin*.....	9 00†	....	....	....	9 00	....	....	....
English Language*....	4 00	....	4 00	....	4 00	....	....	....	4 00
English Literature*....	2 00	....	....	....	3 00	....	....
History and Civil Government*.....	2 00	....	....	....	2 00
French.....	2 00	....	2 00	....	2 00	....	....
German.....	9 00	....	9 00	....	9 00	....	9 00	....	9 00	....
Botany*.....	9 00	....	....	....	....	....	9 00	....
Zoology.....	2 00
Physiology*.....	11 00	....
Geology.....	4 00	....	....
Astronomy.....	3 00
Physical Geography*..	9 00	....	....	....
Physics*.....	11 00	....	9 00	....	....	....	....	4 00
Chemistry*.....	2 00	....	....

ADMISSION ON DIPLOMA.

The privilege of sending pupils for admission on diploma, originally limited to approved schools in Michigan, has been extended to include schools in other States.

On request of the school board in charge of any school, the Faculty will designate a committee to visit the school and report upon its condition. Usually the committee will

* Examination in writing.

† Consultation hour.

consist of members of the Faculty; but whenever, owing to the great distance of a school from Ann Arbor, or for any other reason, this is impracticable, other persons may be designated to perform, under the direction of the Faculty, the work of inspection.

If the Faculty are satisfied from the report of their committee that the school is taught by competent instructors, and is furnishing a good preparation to meet the requirements for admission of candidates for any one or more of our degrees, then the graduates from *the approved preparatory course or courses* will be admitted without further examination, and permitted to enter upon such undergraduate work as the preparatory studies contemplated. They must present to the President, within a year and three months after their graduation, the diplomas of their school board. They must also present certificates from the school superintendent or principal, stating that they have sustained their examinations in all the studies prescribed for admission as candidates for some one of our degrees, and are recommended for admission to the University. They will be required to appear at once in their places; otherwise they can be admitted only upon examination.

The schools which shall be approved shall be entitled to send their graduates on diploma for a period of three years (inclusive of the year of visitation) without further inspection, provided that the Faculty are satisfied that within this period no important changes affecting the course of study and the efficiency of the instruction make another inspection necessary. Otherwise, the Faculty reserve the right to require another inspection if the relation between the school and the University is to be maintained. Should the authorities of any school at any time within this period desire that a committee of inspection visit their school, the Faculty will always grant such a request if practicable.

The superintendent of each approved school is expected to send to the President, annually, at a date not later in

the year than March first, a catalogue of the school; or, if no catalogue is published, he is expected to send a statement, giving the names of the teachers, the number of pupils, and a description of the course of study.

A circular giving fuller details on this subject can be obtained on application to the President.

The schools named below have been approved by the Faculty as qualified to prepare students for admission on diploma for the courses specified. The third column gives the year in which the term of approval expires. Unless otherwise indicated, the places named are in Michigan, and the school approved is the public high school of the locality.

Adrian,	Ph.B., B.S., B.L.	1894
Albion,	B.L.	1894
Allegan,	B.L.	1894
Alpena,	Ph.B., B.S., B.L.	1895
Ann Arbor,	All Courses.	1895
Aurora, Ill.: East Side,	Ph.B., B.S., B.L.	1895
West Side,	Ph.B., B.S., B.L.	1895
Austin, Ill.,	Ph.B., B.S., B.L.	1896
Battle Creek,	All Courses.	1895
Bay City,	All Courses.	1895
Belding,	B.S., B.L.	1894
Benton Harbor,	All Courses.	1894
Benton Harbor: Normal and Collegiate Institute,	All Courses.	1895
Big Rapids,	Ph.B., B.S., B.L.	1894
Birmingham,	Ph.B., B.S., B.L.	1894
Buchanan,	Ph.B., B.S., B.L.	1894
Cadillac,	Ph.B., B.L.	1894
Canandaigua, N. Y.: Granger Place School,	A.B.	1894
Caro,	B.L.	1894
Cassopolis,	Ph.B., B.L.	1895
Cedar Rapids, Ia.,	Ph.B., B.S., B.L.	1894
Champion,	B.S., B.L.	1896
Charlotte,	All Courses.	1895
Chicago, Ill.: North Division,	All Courses.	1896
Northwest Division,	Ph.B., B.S., B.L.	1896
South Division,	All Courses.	1896
West Division,	All Courses.	1896
Calumet,	All Courses.	1896

Englewood,	All Courses.	1896
English High and Manual Training School,	B.S. (Engineering).	1894
Hyde Park,	All Courses.	1896
Jefferson High School,	All Courses.	1896
Lake,	All Courses.	1896
Lake View,	All Courses.	1896
South Chicago,	All Courses.	1896
Harvard School,	All Courses.	1895
Kenwood Institute,	All Courses.	1894
Manual Training School,	B.S. (Engineering).	1894
University School,	All Courses.	1895
Cincinnati, O. Hughes School,	All Courses.	1895
Woodward School,	All Courses.	1896
Cleveland, O. Central High School,	All Courses.	1895
West High School,	All Courses.	1895
Clinton, Ia.,	Ph.B., B.S., B.L.	1895
Coldwater,	All Courses.	1894
Constantine,	Ph.B., B.S., B.L.	1894
Corunna,	Ph.B., B.S., B.L.	1894
Decatur, Ill.,	All Courses.	1894
Denver, Col.,	All Courses.	1896
Detroit,	All Courses.	1895
Detroit: Detroit School for Boys,	All Courses.	1895
Home and Day School,	Ph.B.	1894
Dowagiac,	Ph.B., B.S., B.L.	1894
Duluth, Minn.,	All Courses.	1896
Eaton Rapids,	Ph.B., B.S., B.L.	1896
Elgin, Ill.,	Ph.B.	1894
Escanaba,	B.L.	1894
Fenton,	Ph.B., B.S., B.L.	1894
Flint,	All Courses.	1894
Geneseo, Ill.,	Ph.B., B.S., B.L.	1895
Grand Haven,	Ph.B., B.S., B.L.	1894
Grand Rapids,	All Courses.	1895
Greenville,	All Courses.	1894
Hancock,	B.S., B.L.	1896
Hastings,	Ph.B., B.S., B.L.	1894
Hillsdale,	B.S., B.L.	1896
Holly,	B.S., B.L.	1894
Houghton,	B.S., B.L.	1894
Howell,	All Courses.	1894
Hudson: West Side,	Ph.B., B.S., B.L.	1895

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Ionla,	All Courses.	1895
Iron Mountain,	B.S., B.L.	1894
Ironwood,	B.S., B.L.	1894
Ishpeming,	Ph.B., B.S., B.L.	1896
Ithaca,	B.S., B.L.	1894
Jackson, East Side,	Ph.B., B.S., B.L.	1895
West Side,	All Courses.	1895
Joliet, Ill.,	All Courses.	1894
Jonesville,	B.S., B.L.	1895
Kalamazoo,	All Courses.	1894
Kalamazoo: Michigan Female Seminary,	Ph.B., B.L.	1894
Kansas City, Mo.,	All Courses.	1895
La Grange, Ill. (Lyons township),	All Courses.	1896
Lake Linden,	B.S., B.L.	1894
Lansing,	All Courses.	1896
Lapeer,	Ph.B., B.S., B.L.	1894
La Porte, Ind.,	Ph.B., B.S., B.L.	1894
Ludington,	All Courses.	1895
Manistee,	All Courses.	1895
Marine City,	Ph.B., B.S., B.L.	1895
Marquette,	All Courses.	1894
Marshall,	All Courses.	1896
Mason,	Ph.B., B.S., B.L.	1895
Maywood, Ill.,	Ph.B., B.S., B.L.	1895
Michigan City, Ind.,	All Courses.	1895
Milwaukee, Wis.,	All Courses.	1894
Minneapolis, Minn.,	All Courses.	1894
Monroe,	All Courses.	1894
Mt. Clemens,	Ph.B., B.S., B.L.	1896
Muskegon,	All Courses.	1895
Nashville, Tenn.: Peabody Normal Col- lege,	A.B.	1894
Negaunee,	Ph.B., B.S., B.L.	1896
Niles,	Ph.B., B.S., B.L.	1895
Normal, Ill.: Normal University Acade- mic Department,	A.B., Ph.B.	1895
Oak Park, Ill.,	All Courses.	1896
Oak Park, Ill.: Scoville Place School,	Ph.B., B.S., B.L.	1894
Omaha, Neb.,	All Courses.	1895
Orchard Lake: Michigan Military Acad.,	All Courses.	1895
Ottawa, Ill.,	All Courses.	1895
Owosso,	Ph.B., B.S., B.L.	1895
Oxford, O.: Oxford College,	All Courses.	1895

Paw Paw,	All Courses.	1895
Peoria, Ill.,	All Courses.	1894
Petoskey,	Ph.B., B.S., B.L.	1894
Philadelphia, Pa.: Northeast Manual Training School,	B.S. (Engineering).	1895
Pontiac,	All Courses.	1894
Port Huron,	All Courses.	1895
Portland,	B.L.	1894
Princeton, Ill.,	All Courses.	1895
Raisin Valley Seminary,	B.S., B.L.	1895
Rockford, Ill.,	All Courses.	1894
Romeo,	All Courses.	1896
Saginaw: East Side,	All Courses.	1896
West Side,	All Courses.	1894
St. Clair,	Ph.B., B.S., B.L.	1894
St. Johns,	Ph.B., B.S., B.L.	1896
St. Joseph,	Ph.B., B.S., B.L.	1895
St. Paul, Minn.,	All Courses.	1895
Sault Ste. Marie,	B.S., B.L.	1896
Saxton's River, Vt.: Vermont Academy,	All Courses.	1895
Schoolcraft,	Ph.B., B.S., B.L.	1894
South Bend, Ind.,	Ph.B., B.S., B.L.	1894
Springfield, Ill.,	All Courses.	1895
Tecumseh,	Ph.B., B.S., B.L.	1896
Three Rivers,	Ph.B., B.S., B.L.	1894
Toledo, O.,	All Courses.	1894
Traverse City,	Ph.B., B.S., B.L.	1894
Union City,	Ph.B., B.S., B.L.	1895
Vassar,	B.L.	1894
Vicksburg,	B.S., B.L.	1894
Washington, D. C.: Eastern High School,	All Courses.	1896
West Bay City,	Ph.B., B.S., B.L.	1894
West Des Moines, Ia.,	All Courses.	1895
Ypsilanti,	All Courses.	1895

Total, 144 Schools.

COURSES OF INSTRUCTION.

The Courses of Instruction are subject to change from time to time. At the opening of each academic year, a special Announcement is issued, giving full information

concerning the courses offered for the year, and the days, hours, and places of lecture, recitation, and laboratory work. From the courses offered in the various branches of learning, the student is allowed to make his choice, under regulations prescribed by the Faculty (see page 122).

The courses announced for the year 1894-95 are described below. The amount of credit towards graduation assigned to each course is indicated by the expressions *one hour*, *two hours*, etc., an *hour of credit* being given for the satisfactory completion of work equivalent to one exercise a week during one semester. Lectures and recitations are usually one hour in length, but in laboratory work, drawing, and other practical exercises, a longer attendance is required in order to secure an hour of credit.

For convenience of reference a few courses are included that are not ordinarily open to undergraduates, and for some of these no hours of credit are given.

GREEK.*

All students except those who are admitted to advanced standing, are required to pursue Course 1 before passing on to the other courses. The Teachers' Seminary is open only to those who have completed Courses 1, 2, 3, 4, and either 5*a* or 5*b*, and two hours of elective work. Courses 13*a*, 13*b*, and 13*c* are primarily for graduate students. Courses 6*a*, 6*b*, 7*a*, 8, and 15 are advanced electives for undergraduates, but may be taken with advantage by graduates.

FIRST SEMESTER.

1. Sec. I, Andocides, De Mysteriis; Lysias vs. Eratosthenes; Xenophon's Symposium. Secs. II and III, Lysias; Xenophon's Symposium. *Four hours.* Sec. I, Professor PATTENGILL. Secs. II and III, Mr. DE COU.
4. Demosthenes, De Corona; Studies in the Attic Orators. *Four hours.* Sec. I, Professor PATTENGILL. Sec. II, Mr. DE COU.

* **School of Classical Studies at Athens.**—This University, through the generosity of some of its friends, is a contributor to the support of the American School of Classical Studies at Athens. The School affords facilities for archaeological and classical investigation and study in Greece, and graduates of the Department of Literature, Science, and the Arts of this University are entitled to all its advantages without expense for tuition. Professor M. L. D'Ooge was director of the School for 1886-87.

- 6a. Teachers' Seminary. Lectures on Greek Grammar. *Two hours.* Professor D'OOGÉ.
- 7a. Seminary in Tragedy. Aeschylus, Persians; Sophocles, Ajax; Euripides, Medea. The Persians will be read and interpreted by the instructor. *Three hours.* Professor D'OOGÉ.
8. History of Greek Art from the Beginning to the Roman Period. Von Reber's History of Ancient Art and Collignon's Manual of Greek Archæology will be made the basis of a more general study. *Three hours.* Professor D'OOGÉ.
11. Pindar, The Olympian and Pythian Odes. *Two hours.* Professor D'OOGÉ.
12. Plato, Symposium and Euthydemus, with studies of other dialogues. *Three hours.* Professor PATTENGILL.
13. A special course in reading for graduate students will be arranged by Professor D'OOGÉ.

SECOND SEMESTER.

2. Homer, Odyssey. Secs. I and II, selections from Books I-XII. Sec. III, Books XII-XXIV. *Three hours.* Secs. I and II, Mr. DE COU. Sec. III, Professor PATTENGILL.
Sec. III is for students who have read one or more books of Homer in their preparatory course.
3. History of Greek Literature. Two sections. *One hour.* Mr. DE COU.
5. Dramatic Poetry. This course may be elected as 5a or 5b.
 - 5a. Sophocles, Oedipus Rex; Aristophanes, Wasps. *Four hours.* Professor D'OOGÉ.
 - 5b. Sophocles, Electra; Aristophanes, Wasps. *Four hours.* Professor PATTENGILL.
- 6b. Teachers' Seminary. Greek Prose Composition. *Two hours.* Professor D'OOGÉ.
9. The Bucolic Poets. This course may be elected as 9a or 9b.
 - 9a. Theocritus. *Three hours.* Professor PATTENGILL.
 - 9b. Bion and Moschus. *One hour.* Professor PATTENGILL.
- 13a. Graduate Seminary. Introduction to Homer. Study of the dialect, metre, and peculiarities of style and diction of the Epic poetry. *Three hours.* Professor D'OOGÉ.
- 13b. Graduate Seminary. Introduction to Greek Epigraphy and Reading of Inscriptions. *Two hours.* Mr. DE COU.
- 13c. Graduate Seminary. Advanced Course in Greek writing. *Two hours.* Mr. DE COU.
15. Greek Antiquities. Lectures on the Monuments of Ancient Greece and on the Private Life of the Ancient Athenians. Illustrated by means of stereopticon views. *One hour.* Professor D'OOGÉ.

LATIN.

Courses 1 and 2 must precede all the rest.

In order to increase the range of work offered to advanced students, several of the courses in Latin are given in alternate years, new courses being introduced as opportunity is thus afforded.

Students who wish to obtain a Teacher's Diploma, with Latin as one of the subjects, are expected to complete Courses 1 to 4 inclusive, and Courses 5 or 7, 9, 10, 11, 12, 14, 21, and 22.

Courses 1, 2, 3, 4, 5, and 6 are intended primarily for undergraduates; Courses 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, and 22, are for graduates and undergraduates; Courses 23, 24, 25, 26, 27, 28, 29, and 30 are primarily for graduates, though undergraduates of exceptional ability are sometimes admitted to them by special permission.

FIRST SEMESTER.

1. Cicero, *De Senectute*; *De Amicitia*. Latin Writing. Selections from Catullus. Five sections. *Three hours*. Secs. I and II, Mr. SANDERS. Sec. III, Professor ROLFE. Secs. IV and V, Mr. MEADER.
- 1a. Livy. Books I and XXI. Latin Writing. *Three hours*. Mr. SANDERS.
3. Horace. Selections from the Odes, Satires, and Epistles. Studies in Roman Antiquities. Four sections. *Four hours*. Secs. I and II, Mr. MEADER. Secs. III and IV, Assistant Professor DRAKE.
- 5a. The Letters of Cicero. Interpretation of selected letters, with study of the Latin epistolary style. *Three hours*. Professor ROLFE.
7. Suetonius and Velleius Paterculus. Interpretation of selections, and lectures. *Three hours*. Assistant Professor DRAKE.
9. Introduction to Classical Philology. Lectures. *Three hours*. Professor KELSEY.
 In Course 9 a brief outline of the history and present condition of classical studies is given, followed by an extended discussion of the methods employed in classical philology. Attention is also given to the bibliography of the subject.
11. Latin Writing. *Two hours*. Professor ROLFE.
 Course 11 is introductory to Course 12. The principal aim is to secure correctness of expression and a feeling for idiom.
- 13a. Minor Latin Poets. Propertius and the Elegiac group. *Three hours*. Mr. SANDERS.
- [15. Seneca. Selections from the Epistles. *Three hours*. Professor KELSEY.

Course 15 is omitted in 1894-95.]

17. Seminary in Latin Masterpieces. Study of selected masterpieces of Roman Literature. *Three hours.* Professor ROLFE.
Course 17 is limited to eight students.
21. Teachers' Seminary. Interpretation of Caesar's Gallic war, with studies in the syntax and military antiquities. *Three hours.* Professor KELSEY.
Course 21 is open only to those who receive special permission.
23. Reports on the Current Literature of Latin Philology. Professors KELSEY and ROLFE, and Assistant Professor DRAKE.
Course 23 is open to graduate students and, without credit, to undergraduate members of the Teachers' Seminary.
25. Seminary. Critical study of the First Book of Lucretius, *De Rerum Natura*. *Two hours.* Professor KELSEY.
Course 25 is open to graduate students only.
27. Study of Roman Coins. Professor KELSEY.
Course 27 is open to graduate students only.
- [29. The Italic Dialects. Professor ROLFE.
Course 29 is open to graduate students only. It is omitted in 1894-95.]

SECOND SEMESTER.

2. Two Plays, from Plautus or Terence; Livy, two Books. Six sections. *Four hours.* Secs. I, II, III, and IV, Mr. SANDERS. Secs. V and VI, Mr. MEADER.
4. Roman Literature. Selections from representative authors. Four sections. *Four hours.* Sec. I, Professor ROLFE. Sec. II, Mr. MEADER. Secs. III and IV, Assistant Professor DRAKE.
- 6a. The Tusculan Disputations of Cicero. *Three hours.* Assistant Professor DRAKE.
- 8a. The Institutes of Gaius and Justinian. Interpretation of the text, with special study of the technical terms of the Roman Law. *Two hours.* Mr. MEADER.
- [10. Introduction to Roman Archæology. Elements of Roman archæology; topography and architectural history of Rome; sculpture and painting in the Roman period. Lectures. *Four hours.* Professor KELSEY.
Course 10 is omitted in 1894-95.]
12. Latin Writing. Advanced course. *Two hours.* Professor ROLFE.
In Course 12 attention is given not only to correctness of expression, but also to matters of style and the finer distinctions of the language.
14. Latin Grammar. Lectures. *Four hours.* Professor ROLFE.

16. Latin Inscriptions. Reading of inscriptions of different periods from squeezes and fac-similes. Interpretation of inscriptions with special reference to the study of Roman life and society. *Three hours.* Professor KELSEY.
- [18. Ovid, Fasti. Studies in Roman topography and mythology. *Three hours.* Professor ROLFE.
Course 18 is omitted in 1894-95.]
20. Historical Proseminary. Study of historical subjects from the sources. Period of the Early Empire. *Two hours.* Assistant Professor DRAKE.
22. Teachers' Seminary. Study of select portions of Cicero and Vergil. *Three hours.* Professor KELSEY.
24. Reports on the Current Literature of Latin Philology. Continuation of Course 23. Professors KELSEY and ROLFE, and Assistant Professor DRAKE.
26. Seminary. Critical study of Lucretius, De Rerum Natura; continuation of Course 25. *Two hours.* Professor KELSEY.
Course 26 is open to graduate students only.
28. Study of Roman Coins. Professor KELSEY.
Course 28 is open to graduate students only.
- [30. The Italic Dialects. Continuation of Course 29. Professor ROLFE.
Course 30 is omitted in 1894-95.]

SANSKRIT.

Before beginning the study of Sanskrit, the student shall have pursued courses in Greek and Latin for at least four semesters or, in stead of either Greek or Latin, Germanics of the early period.

FIRST SEMESTER.

1. Beginners' Course. Grammar, exercises in translation and composition. Text-books: Perry's Sanskrit Primer and Whitney's Sanskrit Grammar. *Three hours.* Mr. DE COU.

SECOND SEMESTER.

2. Interpretation of parts of the selections contained in Lanman's Sanskrit Reader, with elementary studies in the comparative morphology of the more important cognate languages. *Three hours.* Mr. DE COU.

HELLENISTIC GREEK.

FIRST SEMESTER.

1. New Testament. Gospels of John and Luke; I Corinthians. Text-books: Westcott and Hort's New Testament, Winer's and Buttmann's Grammars of the New Testament. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Old Testament: Hexateuch: Apocrypha; I and II Maccabees. *Two hours.* Professor CRAIG.

HEBREW.

FIRST SEMESTER.

1. Genesis. Baer and Delitzsch's Text. Harper's Elements of Grammar; Craig's Hebrew Word Manual. *Four hours.* Professor CRAIG.
3. Prophetic Literature: Jonah, Amos, Isaiah. Driver's Moods and Tenses. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Deuteronomy, Joshua, I Samuel, Ruth, Jonah. Theile's Biblia Hebraica. Davies's Lexicon. *Three hours.* Professor CRAIG.
4. Psalms, Job. Wickes's Treatise on Accentuation. *Two hours.* Professor CRAIG.
5. History of the Jews from the Earliest Times to the Christian Era, including the study of their laws, literature, and religion. Lectures. *Two hours.* Professor CRAIG.

ASSYRIAN.

FIRST SEMESTER.

- Introduction to Easy Historical Inscriptions from the Ninth Century, B. C., with study of the Grammar. Text-book: Delitzsch's Assyrische Lesestücke, dritte Auflage. *Three hours.* Professor CRAIG.
3. Translation of the Inscriptions of Sargon II and Assurbanipal. *Two hours.* Professor CRAIG.
 5. Ancient Oriental History, from the year 4,000 B. C. to the fall of Babylon. Including an account of the principal discoveries and a study of the early Oriental traditions and myths. *Two hours.* Professor CRAIG.

SECOND SEMESTER.

2. Inscriptions of Tiglathpileser and Sennacherib. *Two hours.* Professor CRAIG.
4. Babylonian Story of the Deluge; Descent of Ishtar to Hades; Babylonian Psalms and Prayers. *Two hours.* Professor CRAIG.

ARABIC.

FIRST SEMESTER.

1. Grammar; Selections from the Koran; Masudi's Murug al dahabi. Text-book: Socin's Arabische Grammatik (or English translation). *Two hours.* Professor CRAIG.

FRENCH.

Except for students of engineering, for whom special courses, designated by letters of the alphabet, are arranged, Courses 1 and 2 must precede all others. Students who are required to take eight hours in French beyond Courses 1 and 2, are allowed to select from the courses open to them. Courses 10, 13, and 22 require a good degree of proficiency in pronunciation.

FIRST SEMESTER.

1. Beginners' Course. Grammar and easy reading. Seven sections. *Four hours.* Secs. I and II, Mr. EFFINGER. Sec. III, Mr. LEVI. Secs. IV and V, Mr. BOURLAND. Secs. VI and VII, Mr. ELDEN.
3. Composition and Translation from English into French. *Three hours.* Mr. LEVI.
Course 3 is intended for students who want a practical knowledge of the language; it is required of all who intend to take a Teacher's Diploma in French.
6. Critical Prose Writing of the Nineteenth Century. Sainte Beuve; Brunetière; Taine. Two sections. *Two hours.* Sec. I, Professor WALTER. Sec. II, Mr. BOURLAND.
8. French Classic Dramas. Three sections. *Three hours.* Sec. I, Mr. LEVI. Sec. II, Mr. BOURLAND. Sec. III, Mr. EFFINGER.
10. Poets and Poetry of the Nineteenth Century. *Two hours.* Assistant Professor DE PONT.
Course 10 is open only to students who have taken Course 13, or who receive special permission.
12. La Fontaine's and Florian's Fables. Advanced practice in composition and conversation. Comparative study and analysis of the authors. *Three hours.* Assistant Professor DE PONT.
Course 12 must be preceded by Courses 5 and 16, and by a three-hour course in reading.
14. Seminary. *Two hours.* Professor WALTER.
Course 14 is open only to those who receive special permission.
16. Conversational Drill. *Two hours.* Assistant Professor DE PONT.
18. Study of Old French. *Two hours.* Mr. LEVI.
20. Modern French Prose. Musset; Mérimée; Sand. *Two hours.* Mr. EFFINGER.
Course 20 is open only to those who have not had more than eight hours of French.
22. Dramatists of the Eighteenth Century, from the Classical to the Romantic Schools. Regnard; Marivaux; Destouches, etc. *Three hours.* Assistant Professor DE PONT.

Course 22 is open to students who have had Course 8 and three hours more.

24. French Literature of the Sixteenth Century. Lectures, recitations, and essays. *Two hours.* Professor WALTER.

Course 24 is open to students who have had Course 9, and to others who receive special permission.

26. French Philosophical Writers. Descartes; Malebranche; Condillac. *One hour.* Professor WALTER.

Course 26 is open only to those who receive special permission.

SECOND SEMESTER.

2. Modern Prose and Plays. Grammar continued. Six sections. *Four hours.* Secs. I and V, Mr. EFFINGER. Secs. II and IV, Mr. BOURLAND. Sec. III, Mr. LEVI. Sec. VI, Mr. ELDEN.
4. Scientific Reading. *La Nature.* *Four hours.* Assistant Professor DE PONT.

In Course 4 preference is given to B.S. students, for whom the course is prescribed. Other students, if qualified, are admitted in the order of their application.

5. Advanced Composition. Continuation of Course 3; intended as preparatory to seminary work. *Three hours.* Assistant Professor DE PONT.
7. Classic French Prose. Pascal; Bossuet; La Bruyère; Sévigné. Three sections. *Two hours.* Sec. I, Mr. LEVI. Sec. II, Mr. ELDEN. Sec. III, Mr. EFFINGER.
9. Montaigne. *Two hours.* Professor WALTER.

Course 9 is open to all candidates for the degree of A. B. who have had ten hours of French, and to others who receive special permission.

11. Prose Writers of the Eighteenth Century. Sec. I, Rousseau, Contrat Social and Selections. Sec. II, Voltaire; Montesquieu; Diderot. *Three hours.* Sec. I, Professor WALTER. Sec. II, Mr. BOURLAND.

Course 11 is open only to those who receive special permission.

13. French Lyrics. *La Lyre Française.* *Three hours.* Assistant Professor DE PONT.

Course 13 is open to students who have had fourteen hours of French.

15. Seminary. Victor Hugo, Dramas. *Two hours.* Assistant Professor DE PONT.

Course 15 is conducted in French, and is open only to students who have had Course 12 or its equivalent.

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17. Teachers' Course. *Two hours.* Professor WALTER.
Course 17 is open only to those who receive special permission, and they must have completed Course 3 or its equivalent.
21. Contemporary French Drama. *Two hours.* Mr. LEVI.
23. Study of Old French. *Two hours.* Mr. LEVI.
25. French Literature of the Seventeenth Century. *Two hours.* Mr. LEVI.
27. Didactic, Narrative, and Satirical Poetry. Regnier; Boileau; Voltaire. *Two hours.* Mr. BOURLAND.
29. Contemporary Letter-Writers. Doudan; Sand. *Two hours.* Mr. EFFINGER.
31. French Philosophical Writers. Continuation of Course 26. Taine. *One hour.* Professor WALTER.

Special Courses in French for Students of Engineering.

Students of engineering are not admitted to the other courses offered in French, except by special permission.

FIRST SEMESTER.

- B. Narrative Prose. Two sections. *Two hours.* Mr. ELDEN.
Course B is open to those who have taken Course A, or who have passed an entrance examination in French.
- D. Scientific Reading. Two sections. *Two hours.* Sec. I, Mr. ELDEN. Sec. II, Mr. EFFINGER.

SECOND SEMESTER.

- A. Beginner's Course. Grammar and Reader. Two sections. *Four hours.* Mr. ELDEN.
- C. Descriptive Prose. *Two hours.* Mr. EFFINGER.

ITALIAN.

FIRST SEMESTER.

2. Continuation of Course 1. Ariosto or Tasso. *Two hours.* Mr. LEVI.
4. Dante, *La Vita Nuova*. *One hour.* Professor WALTER.
Course 4 must be preceded by Course 1.

SECOND SEMESTER.

1. Grandgent's Italian Grammar. Easy prose. *Three hours.* Mr. LEVI.
Course 1 is open only to those who have completed Courses 1 and 2 in French.
3. Dante, *Divina Commedia*. Lectures and recitations. *Two hours.* Professor WALTER.

SPANISH.

FIRST SEMESTER.

1. Manning's or Edgren's Spanish Grammar. *Easy prose. Two hours.* Mr. BOURLAND.
Course 1 is open only to those who have completed Courses 1 and 2 in French.
3. Calderon, *La Vida es Sueño.* *Two hours.* Professor WALTER.
Course 3 is open only to those who have taken Courses 1 and 2.

SECOND SEMESTER.

2. Continuation of Course 1. *Two hours.* Mr. BOURLAND.

PORTUGUESE.

SECOND SEMESTER.

1. Beginner's Course. *One hour.* Mr. BOURLAND.

GERMAN.

Except for students of engineering, for whom there are special courses designated by the letters A, B, etc., the required work in German is all included in 1, 2, 3, 4, which should be taken in the order of the numerals. The student must take, for the elementary requirement of eight hours, Courses 1 and 2; for the advanced requirement of eight hours, one of the options designated 3*a*, 3*b*, etc., and one of the options designated 4*a*, 4*b*, etc. The numbers above 4 designate advanced electives which can be taken only by special permission.

FIRST SEMESTER.

1. Beginner's Course. Thomas's German Grammar, Part I. and a German Reader. Six sections. *Four hours.* Secs. I and II, Mr. McLOUTH. Sec. III, Dr. WINKLER. Sec. IV, Mr. MENSEL. Secs. V and VI, Mr. HILDNER.
3. Plays of Schiller, with collateral prose reading and practice in writing German. This course may be elected as 3*a*, 3*b*, etc.
 - 3*a*. William Tell. Three sections. *Four hours.* Assistant Professor HENCH, Mr. McLOUTH, and Mr. DIEKHOF.
 - 3*b*. Jungfrau von Orleans. Two sections. *Four hours.* Sec. I, Mr. MENSEL. Sec. II, Mr. McLOUTH.
 - 3*c*. Maria Stuart. *Four hours.* Mr. HILDNER.
5. Third-year electives. These may be elected as 5*a*, 5*b*, etc.
 - 5*a*. The First Part of Goethe's Faust. Thomas's edition. *Three hours.* Professor THOMAS.
 - 5*b*. Lessing's Nathan der Weise, Anti Göze, and Erziehung des Menschengeschlechts. *Three hours.* Assistant Professor HENCH.

- 54. Schiller's Wallenstein with extracts from his Geschichte des dreissigjährigen Kriegs. *Three hours.* Dr. WINKLER.
 - 51. Schönbach's Ueber Lesen und Bildung. *Two hours.* Mr. MENSEL.
 - 52. Ten Brink's Fünf Vorlesungen über Shakespere. *Two hours.* Dr. WINKLER.
 - 53. Scientific Prose. *Two hours.* Mr. DIEKHOFF.
 - 7. Elementary Middle High German. Bachmann's Lesebuch and Paul's Grammatik. *Two hours.* Mr. MENSEL.
 - 9. Teachers' Course. Practice in writing German; critical study of a masterpiece, with German essay. *Three hours.* Professor THOMAS.
- Course 9 is required for the teacher's diploma.
- 11. History of German literature from the earliest times to the death of Goethe. Lectures and readings from Max Müllers German Classics. *Three hours.* Professor THOMAS.
 - 13. Graduate Seminary. *Two hours.* Professor THOMAS.
- Course 13 is intended primarily for graduates and is not open to students working on the credit system.
- 15. Advanced German Composition. Two sections. *Two hours.* Sec. I, Dr. WINKLER. Sec. II, Mr. MENSEL.
 - 17. German Romanticism. Lectures and recitations. *Two hours.* Dr. WINKLER.
 - 19. Modern German Grammar from a Historical and Comparative Point of View; I, Phonology and Morphology. *Two hours.* Assistant Professor HENCH.

SECOND SEMESTER.

- 2. German Grammar Continued. Reading of easy narrative prose and modern dialogue; Storm's Immensee; Riehl's Fluch der Schönheit and Freytag's Journalisten. Six sections. *Four hours.* Secs. I and II, Mr. McLOUTH. Sec. III, Mr. DIEKHOFF. Sec. IV, Mr. MENSEL. Secs. V and VI, Mr. HILDNER.
- 4. Plays of Goethe and Lessing, with collateral prose reading and practice in writing German. This course may be elected as 4a, 4b, etc.
 - 4a. Goethe's Egmont. Three sections. *Four hours.* Sec. I, Mr. McLOUTH. Sec. II, Mr. HILDNER. Sec. III, Mr. MENSEL.
 - 4b. Lessing's Minna von Barnhelm and Emilia Galotti. Two sections. *Four hours.* Sec. I, Dr. WINKLER. Sec. II, Assistant Professor HENCH.

6. Third-year Electives. These may be taken as 6a, 6b, etc.
 - 6a. The Second Part of Goethe's Faust. Schröder's Edition. *Three hours.* Professor THOMAS.
 - 6b. Goethe's Iphigenie, Tasso, and Hermann und Dorothea. *Three hours.* Assistant Professor HENCH.
 - 6c. Laokoon. A study of Lessing's essay with comparison of the critiques by Herder and Goethe. *Three hours.* Dr. WINKLER.
 - 6d. Lessing's Hamburgische Dramaturgie and Freytag's Technik des Dramas. *Two hours.* Dr. WINKLER.
 - 6e. Behaghel's Deutsche Sprache. *Two hours.* Mr. MENSEL.
 - 6f. Scientific Prose. *Two hours.* Mr. DIEKHOFF.
8. Advanced Middle High German. Volksepos and Kunstepos. *Two hours.* Mr. MENSEL.
10. Teachers' Course. Continuation of Course 9; essay in German upon nineteenth century masterpieces; lectures upon German grammar from a historical point of view; pedagogical discussions of methods, text-books, etc. *Three hours.* Professor THOMAS.
12. History of German Literature. Continuation of Course 11. *Three hours.* Professor THOMAS.
14. Graduate Seminary. *Two hours.* Professor THOMAS.
16. Advanced German Composition. Continuation of Course 15. *Two hours.* Dr. WINKLER.
18. German Romanticism. Lectures and recitations. Continuation of Course 17. *Two hours.* Dr. WINKLER.
20. Modern German Grammar from a Historical and Comparative Point of View; II, Syntax. *Two hours.* Assistant Professor HENCH.
22. Old High German. Braune's Althochdeutsche Grammatik and Althochdeutsches Lesebuch. *Two hours.* Assistant Professor HENCH.
24. German Lyrics and Ballads. *Two hours.* Mr. McLOUTH.

Special Courses in German for Students of Engineering.

Students of engineering are not admitted to the other courses offered in German, except by special permission.

FIRST SEMESTER.

- A. Beginner's Course. Thomas's German Grammar, Part 2, and a German Reader. Two sections. *Four hours.* Mr. DIEKHOFF.
- C. Descriptive Prose. Wessely, Deutschlands Lehrjahre. *Two hours.* Mr. DIEKHOFF.

SECOND SEMESTER.

- B. Narrative Prose. Easy Stories. Two sections. *Two hours.* Mr. DIEKHOFF.
- D. Technical Prose. Schroot's *Der Dampf*. Two sections. *Two hours.* Mr. DIEKHOFF.

GOTHIC.

FIRST SEMESTER.

1. Wright's *Primer of the Gothic Language with Readings from Ulfilas*. *Two hours.* Assistant Professor HENCH.

SWEDISH.

The courses in Swedish are open only to those who receive special permission.

FIRST SEMESTER.

1. Modern Swedish Grammar and the Reading of Selections. *One hour.* Professor THOMAS.

SECOND SEMESTER.

2. Tegnér's *Frithjof's Saga* and Selections from Runeberg. *One hour.* Professor THOMAS.

DANISH-NORWEGIAN.

The courses in Danish-Norwegian are omitted in 1894-95, but may be expected in 1895-96. They are open only to those who receive special permission.

FIRST SEMESTER.

- [1. Modern Danish-Norwegian Grammar, and the Reading of Selections. *One hour.* Professor THOMAS.]

SECOND SEMESTER.

- [2. Ibsen's *Brand*. *One hour.* Professor THOMAS.
In connection with Course 2, Professor Thomas gives a short series of free public lectures on the life and works of Ibsen.]

ENGLISH AND RHETORIC.

Courses 11, 12, and 14 are conducted on the seminary plan, the class being divided into small sections for the presentation of theses and reports and for extempore discussion and conference. These courses are designed for advanced students only, and are usually taken by students in their last year of residence at the University.

Courses 7, 8, 9, 10, 11, 12, 14, 15, 19, and 20, will ordinarily be found suitable for graduate students as well as for undergraduates. In

the case of students who have taken these courses for their first degree, special advanced courses are provided for graduate study, after conference with the candidate.

Students who desire to take a Teacher's Diploma in English will be expected to complete Courses 7, 11, and 12.

FIRST SEMESTER.

1. Paragraph-Writing. Six sections. *Two hours.* Secs. I and V, Mr. STRAUSS. Secs. II, III, IV, and VI, Mr. DAWSON.
In the first semester Course 1 (except Sec. III, which is arranged for engineering students,) is designed especially for candidates for the degrees of A. B. and Ph. B.; in the second semester, for all other students.
- 1a. Theme-Writing. *Two hours.* Mr. DAWSON.
Course 1a is open to those who have passed Course 1.
2. Science of Rhetoric. Essays. Four sections. *Three hours.* Assistant Professor SCOTT.
Course 2 must be preceded by Course 1, and by Course 1 or Course 2 in philosophy. Course 1a is recommended as an introduction to this course.
- 2a. Essays. *Two hours.* Assistant Professor SCOTT.
Course 2a is intended for students who, having passed Course 2 in the second semester, desire to continue their work in composition. It is open only to those who receive special permission.
3. Old English (Anglo-Saxon) for beginners. Two sections. *Two hours.* Professor HEMPL.
5. English Literature. Late Middle and Early Modern English (fourteenth and fifteenth centuries), with especial reference to Chaucer. Two sections. *Two hours.* Professor HEMPL.
Course 5 must be preceded by Course 1. It is recommended that it be preceded also by Courses 3 and 4, and by at least one year's study of French.
7. Teachers' Course. Historical English Grammar. *Two hours.* Professor HEMPL.
9. Old-English Syntax. *Two hours.* Professor HEMPL.
Course 9 must be preceded by Course 3.
10. Principles of Literary Criticism. Lectures and discussions. *One hour.* Professor DEMMON.
Course 10 is especially designed to accompany Course 11.
11. English Literature Seminary. Study of masterpieces: More's *Utopia*; Bacon's *Essays*; Milton's *Areopagitica*; Burke's *Reflections on the French Revolution*; Carlyle's *Sartor Resartus*; George Eliot's *Silas Marner*; Spenser's *Faery Queen*, Book I; Shake-

speare's Sonnets; Milton's *Paradise Lost*; Dryden's *Absalom and Achitophel*; Wordsworth's *Excursion*; Tennyson's *Princess*; Browning's *Soul's Tragedy*; Swinburne's *Atalanta in Calydon*. Five sections. *Two hours*. Professor DEMMON.

15. Principles of Style. Inductive study of masterpieces of English prose, with a view to verifying rhetorical principles. Lectures, assigned readings, and discussions. *Two hours*. Assistant Professor SCOTT.

Course 15 is open to those who have taken Course 2.

21. Development of Rhetorical Theory. A historical and comparative study of the growth of rhetorical theory from Aristotle to the present time. *Two hours*. Assistant Professor SCOTT.

Course 21 is open only to graduate students.

SECOND SEMESTER.

1. Paragraph-Writing. Five sections. *Two hours*. Secs. I, II, and III, Mr. DAWSON. Secs. IV and V, Mr. STRAUSS. See note to Course 1 in first semester. Secs. I, II, and III, are designed for engineering students.

- 1a. Theme-Writing. *Two hours*. Mr. DAWSON. See note to Course 1a in first semester.

2. Science of Rhetoric. Essays. Four sections. *Three hours*. Assistant Professor SCOTT.

See note to Course 2 in first semester.

- 2b. Essays. *Two hours*. Assistant Professor SCOTT.

Course 2b is intended for students who, having passed Course 2 in the first semester, desire to continue their work in composition. It is open only to those who receive special permission.

4. English Literature. Transition and Early Middle English (twelfth and thirteenth centuries). *Two hours*. Professor HEMPL.

Course 4 must be preceded by Course 3.

6. English Literature. Modern English. *Three hours*. Professor HEMPL.

Course 6 must be preceded by Course 5. In Course 6 a manual is used to give a general survey of the subject; but special attention is given to each author or period by certain members of the class, each member thus making about half a dozen special studies and reports.

8. Old-English (Anglo-Saxon) Poetry. *Two hours*. Professor HEMPL. Course 8 must be preceded by Course 3.

- 10a. Principles of Literary Criticism. Lectures and discussions. *One hour*. Professor DEMMON.

Course 10a must be preceded by Course 10. It is designed to accompany Course 12.

12. **Shakespeare Seminary.** Plays selected: *A Midsummer Night's Dream*, *The Merchant of Venice*, *As You Like It*, *Twelfth Night*, *The Tempest*, *Richard III*, the two parts of *Henry IV*, *Henry V*, *Hamlet*, *Othello*, *King Lear*, *Macbeth*, and *Coriolanus*. Four sections. *Two hours.* Professor DEMMON.
Course 12 must be preceded by Course 11.
14. **American Literature Seminary.** Authors studied: Irving, Poe, Hawthorne, Bryant, Longfellow, Emerson, Thoreau, Bayard Taylor, Whittier, Holmes, Lowell, Howells, and James. *Two hours.* Professor DEMMON.
Course 14 must be preceded by Course 11. Representative works of the authors above named will be studied and compared with masterpieces of British authors, and an attempt made to discover the distinctively American element.
18. **Advanced Composition.** *Two hours.* Assistant Professor SCOTT.
Course 18 is intended for those who are already proficient in writing, but who feel the need of practice and criticism. It is open only to those who receive special permission.
19. **Spoken English**, with special reference to American English. *Two hours.* Professor HEMPL.
In Course 19 a study is made of colloquial English as distinguished from the English of books and artificial speech, and an attempt is made to settle some of the important facts as to the fortunes of English speech in our country.
20. **Old-English Phonology and Morphology.** *Three hours.* Professor HEMPL.
Course 20 must be preceded by Course 3.
21. **Development of Rhetorical Theory.** A historical and comparative study of the growth of rhetorical theory from Aristotle to the present time. *Two hours.* Assistant Professor SCOTT.
Course 21 is open only to graduate students.

ELOCUTION AND ORATORY.

FIRST SEMESTER.

1. **Elocution.** Exercises in vocal culture, breathing, position, and technique of gesture; pronunciation and emphasis; the Rush and Delsarte philosophies; elements of quality and force of voice, with their applications. *Two hours.* Professor TRUEBLOOD.
3. **Study of Great Orators.** Ancient orators, and modern orators of Continental Europe. Lectures on methods of public address and sources of power; study of representative selections. *Two hours.* Professor TRUEBLOOD.

Course 3 must be preceded by Courses 1 and 2; and by Courses 1 and 2 in English.

5. Shakespearian Reading. Critical study and reading of two of Shakespeare's plays. *Two hours.* Professor TRUEBLOOD.
Course 5 must be preceded by Courses 1 and 2.

SECOND SEMESTER.

2. Elocution. Exercises in vocal culture continued; elements of pitch and time with illustrations; study and application of the principles of action; delivery of short extracts from masterpieces of the orators. *Two hours.* Professor TRUEBLOOD.

Course 2 must be preceded by Course 1.

4. Study of Great Orators. English and American orators. *Two hours.* Professor TRUEBLOOD.

Course 4 must be preceded by Courses 1, 2, and 3; and by Courses 1 and 2 in English.

6. Oral Discussions. Application of the principles of formal logic and elocution in debating leading questions of the day. Designed to develop readiness of extemporization. Preparation of briefs. *Two hours.* Professor TRUEBLOOD.

Course 6 must be preceded by Courses 1 and 2, and by Courses 1 and 2 in English, and by a course in elementary logic.

HISTORY.

Courses 1 and 2, taken in the order indicated by the numbers, must precede all other courses in history, with the exception that Course 3 may be taken in connection with either Course 1 or Course 2. In case the former alternative is chosen, Course 4 may be taken with Course 2.

FIRST SEMESTER.

1. The General History of Europe from the Fall of the Roman Empire to the Reformation. Lectures and recitations. *Three hours.* Mr. Dow.
2. The General History of Europe from the Beginning of the Reformation to the Outbreak of the French Revolution. Lectures and recitations. *Three hours.* Mr. Dow.
3. The Political and Constitutional History of England to the Revolution of 1688. Text-book: Gardiner. Two sections. *Three hours.* Mr. JOHNSTON.
5. Advanced Study of the Constitutional History of England from 1588 to 1660, based on Prothero's Documents illustrative of the Reigns of Elizabeth and James I, and on Gardiner's Constitutional Documents of the Puritan Revolution. *Three hours.* Mr. JOHNSTON.

6. History and Institutions of the more Ancient Nations and of Greece. Text-book: Oman. *Three hours.* Mr. JOHNSTON.
 11. History of Europe from 1789 to 1815. Lectures and recitations. *Three hours.* Professor HUDSON.
 14. The Political and Constitutional History of the United States. Lectures. *Two hours.* Professor McLAUGHLIN.
 - 14a. Supplementary to Course 14. Quiz on lectures, text-book, and assigned reading. Two sections. *One hour.* Professor McLAUGHLIN.
 16. Topical Work in American History. *One hour.* Professor McLAUGHLIN.
 18. Seminary for Research Work in the History of the United States since 1860. *One hour.* Professor McLAUGHLIN.
 19. Constitutional Law and Political Institutions of the United States. Text-books: Bryce and Cooley. *Three hours.* Professor McLAUGHLIN.
 21. Comparative Constitutional Law, with special reference to the Political Institutions of England. Lectures. *Two hours.* Professor HUDSON.
 23. Seminary for the Study of Comparative Constitutional Law, with special reference to the Problems of Municipal Administration. *Two hours.* Professor HUDSON.
- Course 23 can be taken only in connection with or after Course 21.

SECOND SEMESTER.

1. The General History of Europe from the Fall of the Roman Empire to the Reformation. Lectures and recitations. *Three hours.* Mr. DOW.
2. The General History of Europe from the Beginning of the Reformation to the Outbreak of the French Revolution. Lectures and recitations. *Three hours.* Mr. DOW.
4. The Political and Constitutional History of England since the Revolution of 1688. Text-books: Gardiner and May. Two sections. *Three hours.* Mr. JOHNSTON.
Course 4 must be preceded by Course 3.
7. Roman History and Institutions. Text-book: Pelham. *Three hours.* Mr. JOHNSTON.
8. The Revival of Learning and its Relation with the Reformation. Text-book: the one volume edition of Symonds with other prescribed reading. *Three hours.* Mr. JOHNSTON.
12. History of Europe since 1815. Lectures and recitations. *Three hours.* Professor HUDSON.
13. American Colonial History. *Three hours.* Professor McLAUGHLIN.

15. Political and Constitutional History of the United States. Lectures. *Two hours.* Professor McLAUGHLIN.
Course 15 is a continuation of Course 14.
- 15a. Supplementary to Course 15. Quiz on lectures, text-book, and assigned reading. Two sections. *One hour.* Professor McLAUGHLIN.
17. Research Work in the History of the United States, with special reference to Bibliography and Sources of Information. *One hour.* Professor McLAUGHLIN.
20. Leading Cases in the Constitutional Law of the United States, with special reference to their historical significance. *One hour.* Professor McLAUGHLIN.
22. Comparative Constitutional Law, with special reference to the Political Institutions of Germany, Switzerland, France, Belgium, and Italy. Lectures. *Two hours.* Professor HUDSON.
Course 22 is a continuation of Course 21, by which it must be preceded.
24. Seminary for the Study of Comparative Constitutional Law. *Two hours.* Professor HUDSON.

PHILOSOPHY.

A student intending to take all the work in philosophy should take the courses in about the order of their numbers, beginning with Course 1 in the second semester of the second or first semester of the third year of residence at the University. Students not intending to make a specialty of philosophy are strongly recommended to postpone work in philosophy until the third year.

Courses 1a, 1b, 2, 3, 4, 5, 6, 7, and 15, are primarily for undergraduates; other courses are for graduates and advanced undergraduates. Courses 5 and 6 are introductory to Courses 8, 9, 10, 11, and 12. Students should consult with the instructors before making election.

The attention of students taking courses in philosophy is called to the following courses in other branches of study: Greek 12; Latin 25; French 11, 26, and 31; German 17 and 18.

The Philosophical Club will hold several meetings during each semester. Papers will be read by the instructors and by students from the courses of special research.

FIRST SEMESTER.

- 1a. Elementary Logic. Text-book: Hyslop's Elements of Logic. Two sections. *Two hours.* Mr. REBEC.
2. General Psychology. Text-books: for Secs. I and II, Dewey's *Psychology*; for Sec. III, James's *Psychology*, Briefer Course. Secs. I and II, Mr. REBEC. Sec. III, Dr. BIGHAM.

- 2a. Special studies in psychology. Readings, reports, and thesis. *One hour.* Dr. BIGHAM.
3. British Ethics. A general survey from Hobbes to Mill. Lectures and reading. *Two hours.* Assistant Professor LLOYD.
Course 3 must be preceded by Course 2. It is non-technical in character, its intention being to show how English life has reflected itself in thought.
5. History of Ancient and Mediæval Philosophy. Lectures and reading. *Three hours.* Assistant Professor LLOYD.
- 5a. Special Studies in Ancient Philosophy. Reading, reports, and thesis. *One hour.* Assistant Professor LLOYD.
8. Plato. Doctrine of the ideas. Reading and discussions. *Two hours.* Mr. REBEC.
10. Kant's Critique of Pure Reason. Meiklejohn's Translation. Lectures, reading, and reports. *Two hours.* Assistant Professor LLOYD.
- 10a. Special Studies in Kant. One thesis. *One hour.* Assistant Professor LLOYD.
12. Hegel. A general study. Lectures, reading, and thesis. The works of Wallace, Harris, Royce, and others. *Two hours.* Dr. BIGHAM.
15. Beginners' Course in Experimental Psychology. Individual and mass experiments. *Two hours.* Dr. BIGHAM.
Course 15 is open to students who have taken Course 2.
16. Experimental Psychology. Original investigation. Laboratory work. *Three hours.* Dr. BIGHAM.
Course 16 is open to students who have had Course 15.

SECOND SEMESTER.

1. Logic. This course may be elected as 1a or 1b.
 - 1a. Elementary Logic. Text-book: Jevons's Lessons in Logic. *Two hours.* Mr. REBEC.
 - 1b. Inductive Logic. Text-book: Fowler's Inductive Logic. *Two hours.* Mr. REBEC.
2. General Psychology. Text-books: for Sec. I, Dewey's Psychology; for Sec. II, James's Psychology, Briefer Course. *Three hours.* Mr. REBEC.
Course 2 is given also in the first semester. Sec. I is specially recommended for students who have already had some work in philosophy.
4. Philosophy of Religion. Lectures and assigned reading. *Two hours.* Assistant Professor LLOYD.
Course 4 must be preceded by Course 2.

6. History of Modern Philosophy. Lectures and readings. *Three hours.* Assistant Professor LLOYD.
Course 6 should be preceded by Course 5.
- 6a. Special studies in History of Modern Philosophy. One thesis. *One hour.* Assistant Professor LLOYD.
7. Ethics. Text-book: Dewey's Outlines of Ethical Theory. *Three hours.* Assistant Professor LLOYD.
- 7a. Special studies in Ethics. One thesis. *One hour.* Assistant Professor LLOYD.
- 8a. Plato. Special Research. One thesis. *One hour.* Mr. REBEC.
9. Hume. Comparative study of the Treatise of Human Nature and the later Essays. *Two hours.* Mr. REBEC.
11. Continental Philosophy. A general study of Descartes, Spinoza, and Leibnitz. *Two hours.* Dr. BIGHAM.
- 11a. Spinoza. Elwes's Translation of Spinoza's Works. Lectures, reading, and reports. *Two hours.* Assistant Professor LLOYD.
- 12a. Hegel. Special studies for advanced students. Readings and a thesis. *Two hours.* Dr. BIGHAM.
15. Sanford's Course in Experimental Psychology. Individual and mass experiments. *Two hours.* Dr. BIGHAM.
Course 15 is open to students who have had Course 2.
17. Continuation of Course 16. Original investigations. Laboratory work. *Three hours.* Dr. BIGHAM.
Course 17 is also open to students who have had Course 15.

THE SCIENCE AND ART OF TEACHING.

Students who wish to prepare themselves for ordinary class-room duties are advised to pursue Course 1, if they can take but one; those who propose to assume the management of high schools, or graded schools, should take Course 5 in connection with Course 1. In both cases, however, it is desirable for them to pursue Course 2. The order in which Courses 1 and 2 are taken is not material. Students are recommended to take Course 1 or Course 2 before the historical courses. Courses of reading are prescribed in connection with Courses 1 and 2.

FIRST SEMESTER.

1. Practical Pedagogy. The arts of teaching and governing; methods of instruction and general school-room practice; school hygiene; school law. Recitations and lectures. Text-book; Compayré's Lectures on Pedagogy. *Four hours.* Professor HINSDALE.
3. History of Education, Ancient and Mediæval. Recitations and lectures. Text-book: Compayré's History of Pedagogy. The subjects treated in the lectures given in this course are Oriental,

Greek, and Roman education, and the rise and early development of Christian schools. *Three hours.* Professor HINSDALE.

5. School Supervision. General school management, the art of grading and arranging courses of study, the conduct of institutes, etc. Recitations and lectures. Text-book: Payne's Chapters on School Supervision. *Three hours.* Professor HINSDALE.

SECOND SEMESTER.

2. Theoretical and Critical Pedagogy. The principles underlying the art of teaching and governing. Lectures. *Four hours.* Professor HINSDALE.
4. History of Modern Education. Recitations and lectures. Text-book: Compayré's History of Pedagogy. The topics dealt with in this course of lectures are the movements of modern educational thought and practice. *Three hours.* Professor HINSDALE.
6. The Comparative Study of Educational Systems, Domestic and Foreign. Lectures. *Two hours.* Professor HINSDALE.
- [7. Seminary. Study and discussion of special topics in the history and philosophy of education. *Two hours.* Professor HINSDALE.

Course 7 is omitted in 1894-95.]

8. The Great Exponents of Educational Thought and Practice. A historical and expository course for general students. *One hour.* Professor HINSDALE.

POLITICAL ECONOMY.*

Courses in the department of political economy are classified as undergraduate, intermediate, and graduate courses. The undergraduate courses, viz: Courses 1, 2, 3, and 5 may be taken by any student, but will not be accepted as counting for an advanced degree. The intermediate courses, viz: Courses 4, 6, 7, 8, 9, 10, 11, 12, 13, 17, 18, and 20 may also be taken by any student; in the case, however, of students who are pursuing their work on the university system, and of graduate students, special instruction of one hour a week will be given in connection with each course. This extra hour will be devoted to a more careful analysis and a more extended discussion than is possible in the lectures. The graduate courses, viz: Courses 15, 16, 21, and 26 are not open to undergraduate students who pursue their work on the credit system, but may be taken by those who are working on the university system.

A sociology club composed of instructors and graduate students meets weekly, throughout the year, for the discussion of current sociological literature.

* Courses in Sociology are, for the current year, included under this head.

FIRST SEMESTER.

1. Elements of Political Economy. Short Course. Text-book: Walker. Two sections. *Three hours.* Mr. DIXON.
Course 1 is designed for those who desire to obtain a general knowledge of political economy. It embraces, in addition to a statement of fundamental principles, brief studies on practical economic problems.
3. History of the Development of Industrial Society. Lectures and recitations. *Three hours.* Professor ADAMS and Dr. DAVIS.
Course 3 is designed to be introductory to all courses in political economy except Course 1. It is not, however, required for admission to such courses. It embraces a history of English industrial society from the twelfth century to the present time, and is designed to show how modern industrial customs and rights came into existence. It is desirable that it should be preceded by Course 1 in history. Students who intend to take all the work offered in economics should elect Course 3 the first semester of their second year of residence.
5. Problems in Political Economy. Lectures and recitations. *Four hours.* Professor ADAMS and Dr. COOLEY.
Course 5 treats in a cursory manner current problems in political economy. The problems studied are the following: The Railway Problem, Industrial Crises, Free Trade and Protection, Industrial Reforms, Labor Legislation, and Taxation. It is designed as the supplement of Course 2 by which it must be preceded, and as introductory to Courses 4, 6, 7, 8, 9, 10, 11, 12, and 13, although it is not required for these courses.
8. Socialism, including Communism, Collectivism, Land Nationalization, State Socialism, etc. *Two hours.* Professor TAYLOR.
9. Money and Banking. *Two hours.* Professor TAYLOR.
- 9a. Supplementary to Course 9. Reports on assigned reading and some research work. *One hour.* Professor TAYLOR.
Course 9a is open to graduate students and others receiving special permission.
11. Industrial History of the United States. This course includes a history of the leading industries together with a study of labor movements and the farmer question. *Two hours.* Professor TAYLOR.
- 11a. Supplementary to Course 11. Reports on assigned reading. *One hour.* Professor TAYLOR.
Course 11a is open to graduate students and others receiving special permission.

13. The Theory and Practice of Statistics. *One hour.* Dr. COOLEY.
Course 13 treats statistics as a method of social research, an instrument important not only to economists and statisticians but also to all who wish to qualify themselves to understand or criticize current social and political discussion.
15. Critical Analysis of Economic Thought. *One hour.* Professor ADAMS.
17. Seminary in Finance. *Two hours.* Professor ADAMS.
19. Principles of Sociology. Lectures. *Three hours.* Dr. COOLEY.
Course 19 aims at a systematic and comprehensive study of the underlying principles of social science. It embraces a brief historical review of the development of institutions, but is chiefly concerned with an analysis of existing society.
21. Current Economic Legislation and Literature. *One hour.* Professor ADAMS, Professor TAYLOR, Dr. COOLEY, and Mr. DIXON.

SECOND SEMESTER.

2. Elements of Political Economy. Lectures and recitations. *Four hours.* Professor TAYLOR.
4. Principles of the Science of Finance. Lectures and recitations. *Four hours.* Professor ADAMS and Dr. DAVIS.
6. The Transportation Problem. *Two hours.* Professor ADAMS.
10. History of the Tariff in the United States. Lectures and text-book. *Two hours.* Mr. DIXON.
Course 10 is open to all who have had or are taking one course in political economy. It should be preceded by Courses 14 and 15 in history, although this is not a requirement.
12. History of Political Economy. Lectures, text-book, and reports. Specially designed for advanced students. *Two hours.* Professor TAYLOR.
16. Critical Examination of the Labor Problem and of the Monopoly Problem. *One hour.* Professor ADAMS.
18. Seminary in Economics. *Two hours.* Professor ADAMS and Mr. DIXON.
20. Social Philosophy with Especial Reference to Economic Relations. *One hour.* Professor TAYLOR.
22. Problems in Sociology. *Three hours.* Dr. COOLEY.
Course 22 embraces a study of the treatment of criminals, poor-relief, the assimilation of immigrants, the development of great cities, and other sociological questions of present importance.
24. Practical Problems in Statistics. *Two hours.* Dr. COOLEY.
Course 24 must be preceded by Course 13 and is intended to supply practical training in statistical work.

26. Current Economic Legislation and Literature. *One hour.* Professor ADAMS, Professor TAYLOR, Dr. COOLEY, and Mr. DIXON.

INTERNATIONAL LAW.

FIRST SEMESTER.

1. Lectures on International Law. *Two hours.* President ANGELL.
Course 1 is open only to those who have completed two courses in history; Course 2 is especially recommended as one of the two.

SECOND SEMESTER.

2. History of Treaties. *Two hours.* President ANGELL.
Course 2 must be preceded by Course 1.

MUSIC.

The courses in music are open to students who evince sufficient musical ability to pursue them with profit. Courses 1 and 2 are introductory to the technical and critical courses, and no advanced credit will be allowed for them. Courses 3 to 8 are technical and represent four-years' work. Courses 10a and 10b are intended primarily for graduate students, but are open to undergraduates who are fitted to do advanced work. Courses 9a, 9b, 11a, and 11b are open to students who wish to study the historical development of music, as well as its significance as an art.

FIRST SEMESTER.

1. Fundamental Principles of Musical Science. *Two hours.* Professor STANLEY.
3. Science of Harmony. *Two hours.* Professor STANLEY.
5a. Simple Counterpoint. *Two hours.* Professor STANLEY.
6a. Double Counterpoint. *Two hours.* Professor STANLEY.
7. Canon. Fugue. *Two hours.* Professor STANLEY.
9a. The History of Music, including Modern Opera. Lectures. *Three hours.* Professor STANLEY.
10a. Free Composition. Instrumentation. *Two hours.* Professor STANLEY.
11a. Musical Criticism. Lectures. *One hour.* Professor STANLEY.

SECOND SEMESTER.

2. Fundamental Principles of Musical Science, including Elementary Harmony. *Two hours.* Professor STANLEY.
4. Science of Harmony. *Two hours.* Professor STANLEY.
5b. Simple Counterpoint. *Two hours.* Professor STANLEY.
6b. Double Counterpoint and Simple Forms. *Two hours.* Professor STANLEY.

8. Canon. Fugue. Sonata Form. *Two hours.* Professor STANLEY.
- 9*b*. The History of Music. Wagner's Music Dramas. Lectures. *Three hours.* Professor STANLEY.
- 11*b*. Music in its Ethical Relations. Lectures. *One hour.* Professor STANLEY.

BIBLIOGRAPHY.

FIRST SEMESTER.

1. Historical, Material, and Intellectual Bibliography. Lectures. *One hour.* Professor R. C. DAVIS.

During the month of October, Professor DAVIS will give a short course of evening lectures designed to aid readers in the use of the library, and in gaining a knowledge of recent books. These lectures do not count toward a degree.

MATHEMATICS.

Students of engineering are required to take in order Courses 1, 2, 3, 4, and 6. They are also required to take Course 1*b*, unless they have passed a satisfactory examination for admission in plane trigonometry, but no credit toward graduation is given to engineering students for Course 1*b*.

Other students may take in order Courses 1*a*, 2*a*, 3*a*, and 4*a*. Of these, Course 1*a* is required for the degree of B. L.; 1*a* and 2*a* are required for the degrees of A. B., Ph. B., and B. S. Students who desire to give more time to mathematics may substitute Courses 1, 1*b*, and 2 for the shorter Courses 1*a*, 2*a*; and Courses 3, 4, for the shorter Courses 3*a*, 4*a*.

Courses 1, 1*a*, 1*b*, 2, 2*a*, 2*b*, 3, 3*a*, 4, 4*a*, and 6 are intended primarily for undergraduates; Courses 5, 7, 8, 10, 12, 15, 19, 20, 21, and 22 are for graduates and undergraduates; Courses 9, 11, 13, 14, 16, 17, 18, 23, and 24 are primarily for graduates, though undergraduates of exceptional ability are admitted by special permission.

FIRST SEMESTER.

1. Algebra and Analytic Geometry (I). Five sections. *Four hours.*
Sec. I, Mr. LYMAN. Secs. II and V, Dr. MILLER. Sec. III, Dr. MARKLEY. Sec. IV, Mr. HALL.
- 1*a*. Plane Trigonometry and Algebra. Ten sections. *Three hours.*
Secs. I, II, VIII, and X, Mr. HALL. Secs. III, VI, and IX, Mr. LYMAN. Sec. IV, Dr. MARKLEY. Secs. V and VII, Dr. MILLER.
- 1*b*. Plane Trigonometry. Three sections. *Two hours.* Sec. I, Dr. MILLER. Secs. II and III, Dr. MARKLEY.

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3. Differential and Integral Calculus (I). Four sections. *Five hours.*
Sec. I, Assistant Professor ZIWET. Sec. II, Dr. MARKLEY.
Secs. III and IV, Assistant Professor COLE.
- 3a. Calculus (I). *Four hours.* Professor BEMAN.
5. Solid Analytic Geometry (I). *Two hours.* Professor BEMAN.
6. Mechanics. Three sections. *Four hours.* Secs. I and II, Assistant Professor ZIWET. Sec. III, Mr. LYMAN.
7. Projective Geometry (I). *Three hours.* Assistant Professor COLE.
9. Differential Equations (I). *Three hours.* Professor BEMAN.
11. Theory of Complex Numbers (I). *Three hours.* Assistant Professor COLE.
13. Mathematical Reading. *Credit arranged with instructor.*
Course 13 is designed to give graduate students an opportunity to read standard mathematical works under the direction of the Faculty.
16. Advanced Mechanics (II). *Two hours.* Assistant Professor ZIWET.
19. Teachers' Seminary. Algebra. *Two hours.* Professor BEMAN.
Course 19 is open only to those who have completed Courses 1, 2, 3, 4, or 1a, 2a, 3a, 4a.
21. Fourier's Series, and Spherical, Cylindrical, and Ellipsoidal Harmonics. *Two hours.* Dr. MARKLEY.
23. Theory of Substitutions (I). *Three hours.* Assistant Professor COLE.

SECOND SEMESTER.

2. Analytic Geometry (II). Six sections. *Four hours.* Sec. I, Mr. LYMAN. Secs. II and VI, Dr. MILLER. Sec. III, Dr. MARKLEY. Secs. IV and V, Mr. HALL.
- 2a. Plane Analytic Geometry. Nine sections. *Four hours.* Secs. I and II, Mr. HALL. Secs. III and VII, Mr. LYMAN. Sec. IV, Dr. MARKLEY. Secs. V. and VIII, Dr. MILLER. Secs. VI and IX, Assistant Professor ZIWET.
- 2b. Spherical Trigonometry. *Two hours.* Mr. LYMAN.
4. Differential and Integral Calculus (II). Four sections. *Five hours.*
Sec. I. Assistant Professor ZIWET. Sec. II, Dr. MARKLEY.
Secs. III and IV, Assistant Professor COLE.
- 4a. Calculus (II). *Four hours.* Professor BEMAN.
8. Projective Geometry (II). *Three hours.* Assistant Professor COLE.
10. Quaternions. *Credit arranged with instructor.* Professor BEMAN.
12. Modern Higher Algebra. *Three hours.* Dr. MARKLEY.
13. Mathematical Reading. *Credit arranged with instructor.*
See note to Course 13 in first semester.

14. Theory of Complex Numbers (II). *Two hours.* Assistant Professor COLE.
15. Advanced Mechanics (I). *Three hours.* Assistant Professor ZIWET.
17. Differential Equations (II). *Two hours.* Professor BEMAN.
18. Solid Analytic Geometry (II). *Two hours.* Professor BEMAN.
20. Teachers' Seminary. Geometry. *Two hours.* Professor BEMAN. See note to Course 19 in first semester.
22. Fourier's Series, and Spherical, Cylindrical, and Ellipsoidal Harmonics (II). *Two hours.* Dr. MARKLEY.
24. Theory of Substitutions (II). *Two hours.* Assistant Professor COLE.

PHYSICS.

FIRST SEMESTER.

1. Mechanics, Sound, and Light. *Five hours.* Assistant Professor REED.

Course 1 is open to those who have passed an entrance examination in physics, and to all others who have sufficient preparation. A knowledge of plane trigonometry is indispensable.

3. Physical Laboratory Work for Beginners. This course may be elected as *3a* or *3b*.

3a. Three hours. Dr. GUTHE.

3b. Two hours. Dr. GUTHE.

Course 3 must be preceded or accompanied by Course 1.

Students presenting note books from High School physical laboratories approved by this department may be allowed three hours credit instead of two for Course *3b*.

4. Primary and Secondary Batteries. Recitations and laboratory work. *Two hours.* Dr. GUTHE.

Course 4 must be preceded by Courses 1, 2, *3a* or *3b*, and a course in general or analytical chemistry.

5. Electrical Measurements. Lectures and laboratory work. *Five hours.* Professor CARHART, Assistant Professor PATTERSON, and Dr. GUTHE.

Course 5 must be preceded by Courses 1, 2, and *3a* or *3b*. A knowledge of calculus is also required.

6. Sound and Light. Everett's Vibratory Motion and Sound, with laboratory work. *Three hours.* Assistant Professor REED.

Course 6 must be preceded by Courses 1, and *3a* or *3b*.

7. Electricity and Magnetism: Mascart and Joubert. *Three hours.* Assistant Professor PATTERSON.

Course 7 must be preceded by Course 2. A knowledge of calculus is also required.

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9. Distribution of Electricity. Lectures. *Two hours.* Assistant Professor PATTERSON.
Course 9 must be preceded by Course 8a or 8b.
13. The Alternate Current Transformer: Fleming. *Two hours.* Professor CARHART.
Course 13 must be preceded by Course 8a or 8b.
14. Photometry of Electric Lamps: Palaz. Recitations and laboratory work. *Two hours.* Assistant Professor PATTERSON.
16. Theory of Heat: Preston. *Two hours.* Professor CARHART.
17. Geometrical Optics. *Two hours.* Assistant Professor REED.
Course 17 must be preceded by Course 1. A knowledge of calculus is required.

EITHER FIRST OR SECOND SEMESTER.

20. Advanced Laboratory Work in Light. *Two hours.* Assistant Professor REED.
Course 20 must be preceded by Course 11.

SECOND SEMESTER.

2. Electricity, Magnetism, and Heat. *Five hours.* Professor CARHART and Assistant Professor REED.
Course 2 must be preceded by Course 1 and by a course in general or analytical chemistry.
3. Physical Laboratory Work for Beginners. Repetition of Course 3, first semester. This course may be elected as 3a or 3b.
 - 3a. Two sections. *Three hours.*
 - 3b. *Two hours.* Assistant Professor PATTERSON, Assistant Professor REED, and Dr. GUTHE.
8. Electro-Dynamic Machinery. This course may be elected as 8a or 8b.
 - 8a. Lectures and laboratory work. *Four hours.*
 - 8b. Lectures and laboratory work. *Three hours.* Professor CARHART and Assistant Professor PATTERSON.
Course 8 must be preceded by Course 5. Course 8a is for students of electrical engineering only.
10. Electricity and Magnetism: Mascart and Joubert. *Two hours.* Assistant Professor PATTERSON.
Course 10 must be preceded by Course 7.
11. Theory of Light: Preston. Recitations and laboratory work. *Four hours.* Assistant Professor REED.
Course 11 must be preceded by Course 6. A knowledge of calculus is also required.

12. Advanced Laboratory Work in Electricity and Magnetism. *Three hours.* Dr. GUTHE.
Course 12 must be preceded by Course 5.
15. Photometry. Continuation of Course 14. Laboratory work. *One or two hours.* Assistant Professor PATTERSON.
18. Theory of Potential and its Applications. *Two hours.* Dr. GUTHE.
Course 18 must be preceded by Course 2. A knowledge of calculus is required.
19. Design of Electrical Machinery and Appliances. Lectures. *Two hours.* Professor CARHART.
Course 19 must be preceded by 8a or 8b.

GENERAL CHEMISTRY.

Students who enter upon the study of chemistry with the intention of fitting themselves for teaching the science, or who intend to acquire a scientific knowledge of the subject for other purposes, should take Courses 1, 3, 4, and 5. Courses 3a and 10 are also recommended to all except those who wish to make a purely technical application of the study. The research laboratory is intended primarily for graduate students, although advanced undergraduates may be admitted by special arrangement.

FIRST SEMESTER.

1. Elementary Inorganic Chemistry, Descriptive and Experimental. Lectures and recitations. *Three hours.* Mr. HIGLEY.
5. Theoretical Chemistry of Recent Years. Lectures. *Two hours.* Professor FREER.

Course 5 must be preceded by Courses 4 and either 2 or 3 in general chemistry, and by Courses 1 and 10 in analytical and organic chemistry. Course 4 in analytical chemistry is also recommended. This course is intended for undergraduate students, but is also suitable for graduates. For the latter class of students an additional hour will be given to laboratory work in the methods of determining molecular weights.

EITHER FIRST OR SECOND SEMESTER.

2. Laboratory Work in General Chemistry. *Three hours.* Mr. HIGLEY and Mr. LICHTY.
Course 2 must be preceded or accompanied by Course 1 or an equivalent. It is supplementary to Course 1 and covers in the laboratory the ground covered by lectures in Course 1.
3. Laboratory Work in General Chemistry. *Five hours.* Mr. HIGLEY and Mr. LICHTY.

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Course 3 must be preceded by Course 1 or an equivalent, or accompanied by Course 1. It may be taken as a teachers' course. A teacher's diploma is granted to students who have completed Courses 1, 3, 4, and 5, and also Courses 1 and 4 in analytical chemistry.

7. Laboratory Research in General Chemistry. *Credit arranged with instructor.* Professor FREER.

Course 7 is intended primarily for graduates. In any case it is limited to a small number of students and is open only to persons who receive special permission from the instructor. Students electing this course must be able to read German and French, and must have a knowledge of organic preparations.

- 2a. Laboratory Work. Continuation of Course 2. *Two or three hours.* Mr. HIGLEY and Mr. LICHTY.
- 3a. Laboratory Work. Continuation of Course 2 or 3. *Five hours.* Professor FREER and Mr. HIGLEY.

Students taking this course, after completing the regular work, will be given some special advanced work in systematic inorganic preparations. If they wish to continue the work in the following year, they may do so by electing Course 9.

9. Laboratory Research in General Inorganic Chemistry. Continuation of Course 3a. *Credit arranged with instructors.* Professor FREER and Mr. HIGLEY.

Although Course 9 is intended primarily for undergraduates who have taken the regular courses in laboratory instruction given in this department, it is also intended for graduate students who have received equivalent instruction elsewhere.

SECOND SEMESTER.

4. Inorganic Chemistry, Descriptive and Experimental. Continuation of Course 1. *Four hours.* Professor FREER.

Course 4 must be preceded by Course 1, or by an equivalent course of study in some other institution.

6. Journal Club. *One hour.* Professor FREER.

Course 6 must be preceded by Course 5. The professor and all of the instructors and assistants in the department will take part in the Journal Club. While it is intended primarily for graduates, it is also open to undergraduates.

8. The Rarer Chemical Elements. Lectures. *Two hours.* Mr. HIGLEY.

Course 8 is for graduates and undergraduates.

10. Laboratory Work in the Methods of Determining Molecular Weights. *Three hours.* Mr. LICHTY.

ANALYTICAL CHEMISTRY AND ORGANIC CHEMISTRY.

The laboratory work requires from two to three hours daily, taken, in the first semester, between 1 and 5 P. M.; in the second semester, between 1 and 6. Permission for forenoon hours is given when necessary.

Those entering upon the study of analytical chemistry for scientific purposes irrespective of technical application, should first take Courses 1 or 3, and 4, and, if possible, should reach original investigation. In organic chemistry, Course 10 or Courses 10 and 11 should be taken first, and either Course 12 or Course 14 may be taken next. In synthetic research, Courses 10, 11, 12, 13, and 17 may be taken. For commercial analysis, Courses 10, 11, and 14 should be taken. For metallurgical analysis, Courses 1, 4, 6, 7, and 9 are required. For manufacturing chemistry, Courses 1, 4, 5, 10, 11, 14, 15, and 16, are advised. In preparation for physiological chemistry, Courses 1, 4, and 10, are requisite.

Courses 13, 17, 18, 19, 19a, 22, 23, 24, and 25, are intended primarily for graduates and undergraduate students who have had a somewhat extended training in chemistry. The permission of the instructor must be obtained before electing them. It is suggested that Course 10 of general chemistry precede Courses 13, 18, and 19a in organic chemistry.

FIRST SEMESTER.

1. Qualitative Analysis. Recitations and laboratory work. *Ten hours.* Professor JOHNSON.
9. Technical Examination of Gold and Silver Ores, including the Fire Assay. Laboratory work with lectures and reading. *Four hours.* Professor E. D. CAMPBELL.
Course 9 must be preceded by Course 4. Course 2 in mineralogy is recommended.
10. Organic Chemistry. Lectures and recitations. *Five hours.* Professor PRESCOTT.
Course 10 is open to those who have taken Course 1 or Course 3 in analytical chemistry, or Course 1 in general chemistry.
15. Outlines of Chemical Technology. Lectures. *One hour.* Professor JOHNSON.
Course 15 is open to those who have taken Course 1 or Course 3.
21. Technical Gas Analysis. Laboratory work. *One hour.* Professor E. D. CAMPBELL.
Course 21 can be taken only by those who receive special permission.
29. Optical Methods (I). Uses of spectrosopes, refractometers, and colorimeters. Laboratory work with lectures. *Two hours.* Mr. EDWARDS.

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Courses 29 and 30 must be preceded by Course 1 in physics, Course 1 in general chemistry, and Courses 4, 10 or 28, and 12 or 14 in analytical and organic chemistry.

31. Optical Methods (III). Advanced work requiring research. *Credit arranged with instructor.* Mr. EDWARDS.

EITHER FIRST OR SECOND SEMESTER.

4. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Seven hours.* Professor E. D. CAMPBELL.
Course 4 is open to those who have taken Course 1.
5. Advanced Quantitative Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.
Course 5 is open to those who have taken Course 4 and received special permission.
6. Iron and Steel Analysis. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.
Course 6 is open to those who have taken Course 4 and who receive special permission. It cannot be taken at the same time with Course 5.
7. Special Methods in Iron and Steel Analysis. Continuation of Course 6. Laboratory work. *Five hours.* Professor E. D. CAMPBELL.
Course 7 must be preceded by Course 6.
11. Organic Chemistry. Laboratory work. *Two hours.* Dr. GOMBERG.
Course 11 is open to those who have taken Course 1 or Course 3.
It must be preceded or accompanied by Course 10.
- 11a. Organic Chemistry. Laboratory work, continuation of Course 11. *Two hours.* Dr. GOMBERG.
12. Organic Chemistry. Ultimate analysis and synthetic preparations. Laboratory work. *Five hours.* Professor PRESCOTT and Dr. GOMBERG.
Course 12 is open to those who have taken Courses 1, 4, and 10.
13. Organic Chemistry. Continuation of Course 12. *Five hours.* Professor PRESCOTT.
17. Original Investigations in Organic Chemistry. Laboratory work, reading, and seminary studies. *Five hours.* Professor PRESCOTT.
18. Original Investigation. Continuation of Course 17. *Five hours.* Professor PRESCOTT.
Courses 17 and 18 must be preceded by Courses 1, 4, and 10.
19. Organic Synthesis. Laboratory and library work with seminary studies. *Three hours.* Professor PRESCOTT.

- 19a. Organic Synthesis. Continuation of Course 19. *Three hours.* Professor PRESCOTT.
Courses 19 and 19a should be preceded by Courses 1 and 10.
22. Original Investigations in Qualitative Analysis and Applied Chemistry. Laboratory work. *Five hours.* Professor JOHNSON.
23. Original Investigations in Qualitative Analysis and Applied Chemistry. Laboratory work. *Three hours.* Professor JOHNSON.
Courses 22 and 23 must be preceded by Courses 1 and 4.
24. Original Investigations in Quantitative Analysis and its Applications. Laboratory work and reading. *Five hours.* Professor E. D. CAMPBELL.
25. Original Investigations in Quantitative Analysis and its Applications. Laboratory work and reading. *Three hours.* Professor E. D. CAMPBELL.
Courses 24 and 25 are open only to those who have special permission.
26. Bibliography of Quantitative Analysis. Reading and seminary work. *One hour.* Professor E. D. CAMPBELL.
27. Bibliography of Quantitative Analysis. Reading and seminary work. *Two hours.* Professor E. D. CAMPBELL.
Courses 26 and 27 must be preceded or accompanied by one of the following courses: 5, 6, 7, 9, 24, 25.

SECOND SEMESTER.

1. Qualitative Analysis. Recitations and laboratory work. *Ten hours.* Professor JOHNSON.
2. Advanced Qualitative Analysis. Continuation of Course 1, with original work. Recitations and laboratory work. *Five hours.* Professor JOHNSON.
Course 2 must be preceded or accompanied by Course 4.
3. First steps in Qualitative Analysis. Recitations and laboratory work. *Five hours.* Professor JOHNSON.
Course 3 is a short course, designed for students of civil and of mechanical engineering.
14. Organic Analysis. Lectures and laboratory work. *Five hours.* Dr. GOMBERG.
Course 14 is open to those who have taken Courses 1 or 3, and 4 or 10.
16. Manufacture and Purification of Chemicals. Laboratory work. *Four hours.* Professor JOHNSON.
Course 16 is open to those who have completed Courses 1 and 2.

20. The Unsaturated Hydrocarbons and their Derivatives. This course may be elected as 20a and 20b.
 20a. Lectures. *Two hours.* Mr. EDWARDS.
 20b. Laboratory work. *Three hours.* Mr. EDWARDS.
 Course 20a must be preceded by Course 1 in general chemistry and Course 10 or 28 in organic chemistry; 20b must be preceded by Course 11 and 11a, or 12, in organic chemistry. It is desirable to take 20a and 20b together.
28. Organic Chemistry. Lectures. *Four hours.* Professor PRESCOTT.
 Course 28 must be preceded by Course 1 or Course 3 in analytical chemistry or by Course 1 in general chemistry.
30. Optical Methods (II). Uses of polariscopes and polarization-spectro-photometers. Laboratory work with lectures. *Two hours.* Mr. EDWARDS.
 See note to Course 29 in first semester.
- 31a. Optical Methods (III). Advanced work requiring research. *Credit arranged with instructor.* Mr. EDWARDS.
 Course 31a may be taken as a continuation of Course 31.

HYGIENE AND PHYSIOLOGICAL CHEMISTRY.

FIRST SEMESTER.

1. Hygiene. Lectures. *Three hours.* Professor VAUGHAN.
2. Bacteriology. Lectures. *Three hours.* Professor NOVY.

EITHER FIRST OR SECOND SEMESTER.

3. Bacteriology. Laboratory work, *daily for three months*, beginning the first week in October, January, and April. *Five hours.* Professor NOVY.
4. Methods of Hygiene. Analyses of water, air, soil, milk, butter, etc. *Seven hours.* Professor NOVY.
 Course 4 is open to those who have taken Course 1 or Course 3 in analytical chemistry.
5. Methods of Hygiene. Continuation of Course 3. *Five hours.* Professor NOVY.
7. Physiological Chemistry, including Analysis of Urine. Lectures and laboratory work. *Seven hours.* Professor NOVY.
 Course 7 is open to those who have taken Course 1 or Course 3 in analytical chemistry and Course 10 in organic chemistry.
8. Advanced Physiological Chemistry. Laboratory work and reading. *Seven hours.* Professor NOVY.
9. Original Research on the Causation of Disease. Laboratory work and reading. *Five hours.* Professor VAUGHAN.
 Course 9 is designed for advanced students and is open only to such as receive special permission.

10. Original Research on the Causation of Disease. Continuation of Course 9. *Seven hours.* Professor VAUGHAN.

SECOND SEMESTER.

6. Physiological Chemistry. Lectures. *Three hours.* Professor VAUGHAN.

ASTRONOMY.

A knowledge of logarithms and of spherical trigonometry is required for all courses in astronomy except 1 and 2. In Course 3, however, a short review of spherical trigonometry is given.

FIRST SEMESTER.

1. General Astronomy. *Three hours.* Mr. TOWNLEY.
Course 1 requires a knowledge of plane trigonometry. Students who have passed in astronomy for entrance will receive only two hours credit for this course.
3. Spherical Astronomy. *Three hours.* Professor HALL.
Course 3 must be preceded by Course 1 or its equivalent. A knowledge of calculus is also required.
5. Method of Least Squares and Empirical Curves. *Two hours.* Mr. TOWNLEY.
Course 5 requires a knowledge of the integral calculus.
6. Theoretical Astronomy. *Five hours.* Professor HALL.
Course 6 should be preceded by Course 16 in mathematics.
11. Mathematical Theories of Planetary Motions. *Two hours.* Professor HALL.
Course 11 should be preceded by Course 16 in mathematics.

EITHER FIRST OR SECOND SEMESTER.

2. Elementary Practical Course. *One hour.* Mr. TOWNLEY.
Course 2 requires a knowledge of trigonometry and general astronomy.
4. Practical Astronomy. Use of portable transit. *Two hours.* Mr. TOWNLEY.
Course 4 requires a knowledge of differential and integral calculus.
9. Extended Practical Course. *Credit arranged with instructors.* Professor HALL and Mr. TOWNLEY.
Course 9 is open only to such students as receive special permission from the instructors.

SECOND SEMESTER.

7. Theoretical Astronomy. *Five hours.* Professor HALL.
Course 7 should be preceded by Course 16 in mathematics.

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8. Spherical Astronomy. Continuation of Course 3. *Three hours.*
Professor HALL.

MINERALOGY.

FIRST SEMESTER.

1. Short Course. Lectures and practice. *Two hours.* Professor PETTEE.

For Course 1 an elementary knowledge of chemistry is desirable.

3. Advanced Course. *One hour.* Professor PETTEE.

Course 3 must be preceded by Course 1 or by Course 2. It may also be taken in the second semester.

SECOND SEMESTER.

2. Mineralogy and Lithology. Lectures and practice. *Five hours.*
Professor PETTEE.

Course 2 is open only to those who are taking, or have taken, a course in analytical chemistry.

GEOLOGY.

Courses 1 and 2 are intended primarily for undergraduates. Courses 3 to 6 are for graduate students and undergraduates who have had sufficient preparation to pursue them with advantage. Special courses will be arranged for graduates by either Professor PETTEE or Professor RUSSELL.

FIRST SEMESTER.

1. Elements of General Geology,—dynamical, lithological, and structural. Lectures and recitations. *Three hours.* Professor RUSSELL.

3. General Palæontology. Invertebrates. Reading, lectures, and laboratory work. *Three hours.* Professor RUSSELL.

Course 3 requires a knowledge of the elements of general geology.

5. Physical Geology. Lectures and studies of special subjects. *Two hours.* Professor RUSSELL.

Course 5 must be preceded by Courses 1 and 2, or an equivalent.

8. Economic Geology. *Two hours.* Professor PETTEE.

Course 8 must be preceded by Course 2 in mineralogy.

9. [Geology of the United States. *Two hours.* Professor PETTEE.
Course 9 is omitted in 1894-95.]

SECOND SEMESTER.

2. Elements of General Geology continued,—historical geology. Lectures and recitations. *Three hours.* Professor RUSSELL.

4. Palæontological Investigations. Laboratory work, with reading and such instruction as the student may require. This course may be elected as *4a, two hours; 4b, three hours; or 4c, five hours.* Professor RUSSELL.
6. Physical and Glacial Geology. *Two hours.* Professor RUSSELL. Course 6 must be preceded by Course 5.

GENERAL BIOLOGY.

FIRST SEMESTER.

1. Elements of Biology. A study of typical species of plants and animals, with reference to structure, function, development, and relationship. Lectures and laboratory work. *Five hours.* Assistant Professor WORCESTER and Mr. JOHNSON.

SECOND SEMESTER.

2. Elements of Biology. Continuation of Course 1. Lectures and laboratory work. *Five hours.* Assistant Professor WORCESTER and Mr. JOHNSON.

Course 2 must be preceded by Course 1. See note to Course 1 in animal morphology.

SYSTEMATIC ZOOLOGY.

FIRST SEMESTER.

1. The Evolution of Species and their Geographical Distribution. Illustrated lectures. *Three hours.* Assistant Professor WORCESTER.
3. Field Club Work. Field excursions and laboratory work, with occasional lectures. The work will consist of the careful collection, identification, preservation, and study of specimens of the local fauna. *Three hours.*
5. Study of special groups. Students desiring to carry on systematic work on special groups represented in the University Museum will be given every opportunity to do so, but must first satisfy the instructors in charge of their fitness to pursue the work. *Credit to be arranged with instructors.* Assistant Professor WORCESTER and Dr. LILLIE.

In 1895-6 Course 5 will be restricted to those who have completed Courses 3 and 4.

SECOND SEMESTER.

2. Continuation of Course 1. *Three hours.* Assistant Professor WORCESTER.

4. Continuation of Course 3.
6. Continuation of Course 5. *Credit to be arranged with instructors.*
Assistant Professor WORCESTER and Dr. LILLIE.

ANIMAL MORPHOLOGY.

After Course 1 in general biology the student should take Course 2 in general biology, or Course 1 in animal morphology, then either 2 and 3, or 4 and 5, or 6 and 7, or all of them; after 4 and 5, 9 and 8, and finally 12, 13, 14, and 15.

Course 1 and the introductory courses in general biology are intended primarily for undergraduates; Courses 2, 3, 4, 5, 6, 7, 8, 9, 15, 17, and 21 are for graduates and undergraduates; Courses 10, 11, 12, 13, 14, 17, and 19 are primarily for graduates and undergraduates on the university system.

FIRST SEMESTER.

2. Morphology of Invertebrates. Lectures, with laboratory work and demonstrations. The work embraces a series of forms not included in the courses in general biology. *Three hours.* Dr. LILLIE.
4. Mammalian Anatomy. Dissection of the cat. Lectures, quizzes, and laboratory work. *Five hours.* In the laboratory work the class uses type-written copies of a descriptive anatomy of the cat, prepared by Professor REIGHARD and Mr. LEWIS.
6. Vertebrate Histology. Laboratory work with instruction in methods and lectures. *Five hours.* Assistant Professor HUBER.
Course 6 must be preceded or accompanied by Courses 1 and 2 in general biology or by Course 1 in general biology and Course 1 in animal morphology.
9. Comparative Embryology of Vertebrates. Lectures and laboratory work on fish (*coregonus*), amphibians (*amblystoma*), the chick, and rabbit. *Five hours.* Dr. KOFOID.
Course 9 is most advantageously taken after Courses 4 and 5, but may follow directly after Courses 1 and 2 in general biology.
12. Current Literature of Animal Morphology. The instructors and advanced students form a journal club which holds weekly meetings. Reports are made on important current papers and are followed by informal discussion. Although the meetings are open to all, the membership is restricted. *One hour.* Assistant Professor WORCESTER, Dr. KOFOID, and Dr. LILLIE.
14. Original Work in Animal Morphology, Invertebrate Morphology, and Vertebrate Comparative Anatomy, Embryology, and Histology. This course may be elected as 14a, *two hours*; 14b,

three hours; 14c, five hours; 14d, ten hours; or 14e, fifteen hours. Assistant Professors WORCESTER and HUBER and Dr. KOFOID.

SECOND SEMESTER.

1. Elements of Biology of Animals. A study of typical species with reference to structure, function, development, and relationship. Lectures and laboratory work. *Three hours.* Assistant Professor WORCESTER.

Course 1 is equivalent to the zoological part of Course 2 in general biology.

3. Morphology of Invertebrates. Continuation of Course 2. *Three hours.* Dr. LILLIE.
5. Mammalian Anatomy. Continuation of Course 4. *Five hours.* Mr. LEWIS.
7. Vertebrate Histology. Laboratory work and lectures. *Five hours.* Assistant Professor HUBER.

The requirements for admission are the same as for Course 6.

8. Comparative Anatomy of Vertebrates. Lectures and laboratory work on selected forms (Amphioxus, Petromyzon, Raja, Perca, Amblystoma, Alligator, Columba). *Five hours.* Dr. KOFOID.

Course 8 must be preceded by Course 9.

13. Current Literature of Animal Morphology. Continuation of Course 12. *One hour.* Assistant Professor WORCESTER, Dr. KOFOID, and Dr. LILLIE.

Course 13 may be taken only after consultation with the instructors.

15. Original Work in Animal Morphology. Continuation of Course 14. It may be elected as 15a, *two hours; 15b, three hours; 15c, five hours; 15d, ten hours; or 15e, fifteen hours.* Assistant Professors WORCESTER and HUBER and Dr. KOFOID.

17. Methods of Vertebrate Histology. Laboratory work with reading. *Two hours.* Assistant Professor HUBER.
19. The Microscopic Anatomy of the Brain and Special Sense Organs of Vertebrates (especially Man). Laboratory work. *Five hours.* Assistant Professor HUBER.

Courses 17 and 19 must be preceded by Course 6 or Course 7. Course 19 should also be preceded by a course in embryology, but this is not a requirement.

21. The Animal Egg: A course of lectures on the maturation, fecundation, and cleavage of the Animal Egg, with a discussion of the theory of Isotropy, the Mosaic theory, etc. The conclusions of *Experimental Embryology* will be discussed, and qualified students may, by special permission, undertake individual labora-

tory work on this subject. The course may be elected as **21a** or **21b**.

21a. Lectures. *One hour.* Dr. KOFOID.

21b. Lectures with laboratory work. *Three hours.* Dr. KOFOID.

HUMAN ANATOMY.

No courses in human anatomy are given in this department of the University; but students who intend to pursue the study of medicine after receiving a bachelor's degree, may elect courses in human anatomy in the Department of Medicine and Surgery, and receive credit therefor towards the bachelor's degree, provided they receive special permission from the deans of the two departments. The courses offered are as follows:

FIRST SEMESTER.

1. Osteology. Lectures and demonstrations. *Two hours.* Dr. YUTZY.
2. Descriptive Anatomy. Lectures. *Two hours.* Professor McMURRICH.
4. Anatomy of Nervous System. Lectures. *One hour.* Professor McMURRICH.

It is desirable that Course 4 should be preceded by Course 3.

EITHER FIRST OR SECOND SEMESTER.

6. Practical Anatomy. Laboratory work. *Four hours.* Professor McMURRICH, Assistant Professor W. A. CAMPBELL, and Dr. YUTZY.
7. Practical Anatomy. Laboratory work. *Four hours.* Professor McMURRICH, Assistant Professor W. A. CAMPBELL, and Dr. YUTZY.

Courses 6 and 7 are both required in order to complete the laboratory work in human anatomy. Classes are formed three times a year, and each course requires the attendance of the student every day for twelve weeks.

SECOND SEMESTER.

3. Descriptive Anatomy. Continuation of Course 2. Lectures. *Two hours.* Professor McMURRICH.
5. Anatomy of Nervous System. Continuation of Course 4. Lectures. *One hour.* Professor McMURRICH.

BOTANY.

As introductory to the work in botany all students are required to take a semester, and are advised to take a year, in general biology.

The two courses in general biology and Courses 2, 4, and 4a in botany are intended primarily for undergraduates; Courses 1, 3, 5, 6, and 8 are for graduates and undergraduates; Courses 7, 9, 10, and 12 are primarily for graduates, but undergraduates may be admitted to them by special permission.

Additional courses to be given on the return of Professor Spalding, who is now absent on leave, will appear in the Announcement for 1895-96.

FIRST SEMESTER.

1. Cell Morphology and Physiology. Lectures and laboratory work. *Five hours.* Assistant Professor NEWCOMBE.
Course 1 must be preceded by a year in general biology or an equivalent.
3. Experimental Physiology. Lectures and laboratory work. *Three hours.* Assistant Professor NEWCOMBE.
Course 3 must be preceded by a year in general biology or an equivalent.
5. Biology of Fungi and Bacteria. Advanced course, with special attention to forms of economic importance and their methods of culture. Lectures and laboratory work. *Three hours.* Mr. JOHNSON.
Course 5 must be preceded by Course 4.
7. Investigations in Cryptogamic Botany. This work may be elected by undergraduates as 7a, *three hours*; 7b, *five hours*; or 7c, *eight hours.* Mr. JOHNSON.
9. Investigations in Morphology and Physiology. This work may be elected by undergraduates as 9a, *three hours*; 9b, *five hours*; or 9c, *eight hours.* Assistant Professor NEWCOMBE.
11. Current Literature of Botany. *One hour.* Assistant Professor NEWCOMBE and Mr. JOHNSON. •

SECOND SEMESTER.

2. Elementary Biology of Plants. Lectures and laboratory work. *Three hours.* Mr. JOHNSON.
Course 2 must be preceded by Course 1 in general biology.
4. Cryptogamic Botany. Fungi. Lectures and laboratory work. *Three hours.* Mr. JOHNSON.
Course 4 must be preceded by Course 1 in general biology.
- 4a. Field Work and Reading to accompany Course 4. *Two hours.* Mr. JOHNSON.
Course 4a can only be elected by special permission.
6. Experimental Physiology. Continuation of Course 3. Lectures and laboratory work. *Three hours.* Assistant Professor NEWCOMBE.

8. Comparative Anatomy of Phanerograms. Lectures and laboratory work. *Five hours.* Assistant Professor NEWCOMBE.
Course 8 must be preceded by a year in general biology or an equivalent, and should be preceded also by Course 1.
10. Investigations in Cryptogamic Botany. This work may be elected by undergraduates as 10a, *three hours*; 10b, *five hours*; 10c, *eight hours.* Mr. JOHNSON.
12. Investigations in Morphology and Physiology. This work may be elected by undergraduates as 12a, *three hours*; 12b, *five hours*; or 12c, *eight hours.* Assistant Professor NEWCOMBE.
14. Current Literature of Botany. *One hour.* Assistant Professor NEWCOMBE and Mr. JOHNSON.

PHYSIOLOGY.

The courses in physiology are arranged for those who intend to become physicians or dentists, those who propose to teach the subject, and those who contemplate making biology, psychology, or physiology a specialty.

Instruction is given by lectures, recitations, informal discussions, and laboratory work. In the laboratory the student not only learns to use the apparatus and methods employed in ordinary physiological experiments, but gains an intimate acquaintance with physiological processes not otherwise attainable. Advanced students are given an opportunity to begin research work.

Students who intend to take work in physiology are advised to precede such work by the following courses or their equivalents, viz: Courses 4 and 5 in animal morphology, or a course in descriptive and practical human anatomy, and lectures and laboratory work in vertebrate histology in the Department of Medicine and Surgery, Courses 1 and 2 in physics, Courses 1, 2, and 4 in general chemistry, and Course 10 in organic chemistry. A reading knowledge of scientific German will be found to be of great service.

FIRST SEMESTER.

1. Lectures and Recitations. *Five hours.* Professor LOMBARD.

SECOND SEMESTER.

2. Continuation of Course 1. *Five hours.* Professor LOMBARD.
3. Laboratory Work. *One hour.* Professor LOMBARD.
Course 3 is open only to students who have taken or are taking Course 2.
4. Physiological Experiments. Intended for those who expect to teach. *One hour.* Professor LOMBARD.
Course 4 is open only to those who have taken Course 3.

DRAWING.

FIRST SEMESTER.

1. Elementary Drawing. Practice. Three sections. *Two hours.*
Sec. I. Professor J. B. DAVIS. Secs. II and III, Mr. LUTEN.
Sec. I is for students of civil engineering, Sec. II for students of electrical engineering, and Sec. III, which covers the last two-thirds of the semester, is intended for students of mechanical engineering who take Course 4 in surveying the first third of the semester.
3. Mechanical Drawing. Text-book and practice. *Three hours.* Professor J. B. DAVIS.
4. Free-hand Drawing; Pen and Ink Drawing; Sketching. *Three hours.* Professor DENISON or Miss HUNT.
9. Sketching of Parts of Machines. Lettering. *Three hours.* Professor DENISON.
Course 9 is designed especially for students of mechanical engineering.
10. Continuation of Course 8. *Two hours.* Professor DENISON or Miss HUNT.
Course 10 must be preceded by Courses 4 and 8.
- [13. Water-Color Drawing. *Three hours.* Professor DENISON or Miss HUNT.
Course 13 must be preceded by Course 8. It is omitted in 1894-95.]

SECOND SEMESTER.

5. Descriptive Geometry. Recitations and drawing. Five sections. *Three hours.* Secs. I and II, Professor J. B. DAVIS and Professor DENISON. Sec. III, Mr. WRENTMORE. Secs. IV and V, Mr. LUTEN.
Course 5 must be preceded by Course 1. Sec. I is for students of civil engineering, Sec. II for students of electrical engineering, Sec. III for students of mechanical engineering, Secs. IV and V for others.
6. Shades, Shadows, and Perspective. *Three hours.* Professor DENISON.
Course 6 must be preceded by Course 5.
7. Free-hand Drawing (advanced). *Three hours.* Professor DENISON or Miss HUNT.
8. Architectural and Water-Color Drawing. *Two hours.* Professor DENISON or Miss HUNT.
Course 8 must be preceded by Course 1 or 4.
14. Stereotomy. *Two hours.* Professor DENISON.
Course 14 must be preceded by Course 5.

SURVEYING.

FIRST SEMESTER.

1. Lectures and Field Practice with instruments. *Four hours.* Professor J. B. DAVIS.
The field practice in Course 1 continues during favorable weather until Christmas.
4. Use of Instruments. *One hour.* Mr. LUTEN.
Course 4 covers the first third of the semester and is for students of mechanical engineering who take Course 1 in drawing in the last two-thirds of the semester.
6. Continuation of Course 5. Phototopography. Field work and drawing. *One hour.* Mr. LUTEN.

SECOND SEMESTER.

2. Continuation of Course 1. Railroad surveying, city engineering, and road-making. Lectures and text-book. *Five hours.* Professor J. B. DAVIS.
Course 2 must be preceded by Course 1.
3. Field Work in Camp for four weeks. Professor J. B. DAVIS.
Course 3 is open only to students who are working for a degree in civil engineering, except by special permission.
5. Topography. Transit and Stadia. Plane Table. Field work and drawing. *Three hours.* Mr. LUTEN.

CIVIL ENGINEERING.

FIRST SEMESTER.

1. Principles of Mechanism. Drawing. *Two hours.* Professor DENISON.
4. Graphical Analysis of Structures. *Two hours.* Professor GREENE.
Course 4 must be preceded by Course 3.
5. Strength and Resistance of Materials. Two sections. *Two hours.* Professor GREENE.
Course 5 must be preceded by Course 6 in mathematics.
Sec. I is for students of civil engineering; Sec. II, for others.
6. Engineering. Theory of construction. *One hour.* Professor GREENE.
Course 6 must be preceded by Course 6 in mathematics.
7. Engineering Design. *Five hours.* Professor GREENE.
Course 7 accompanies Courses 5 and 6.

SECOND SEMESTER.

2. Dynamics of Machinery. Two sections. *One hour.* Assistant Professor WAGNER.

Course 2 is the same as the first half of Course 7 in mechanical engineering.

3. Graphical Analysis of Structures. Two sections. *Two hours.* Professor GREENE.

Course 3 requires at least a limited knowledge of statics.

Sec. II is for students of civil engineering; Sec. I, for others.

8. Engineering. Theory of construction. *Four hours.* Professor GREENE.

9. Hydraulics. *One hour.* Professor GREENE.

10. Water Supply and Sewerage. *One hour.* Professor GREENE.

MECHANICAL ENGINEERING.

FIRST SEMESTER.

5. Principles of Mechanism. Drawing. *Three hours.* Professor DENISON.

Course 5 must be preceded by Course 1 or 1a in mathematics, and by Courses 1 and 5 in drawing.

- 8a. Prime Movers. Water wheels and steam engines. *Two hours.* Professor COOLEY and Assistant Professor WAGNER.

- 8b. Prime Movers. Water wheels. *One hour.* Professor COOLEY. Course 8b is intended for those who have taken Course 9; 8a is for all others.

Courses 8a and 8b must be preceded by Course 7.

10. Theory of Machine Design, including Electrical Design. *Two hours.* Professor COOLEY and Assistant Professor WAGNER.

Course 10 must be preceded or accompanied by Course 5 in civil engineering.

11. Design of General Machinery. *Three hours.* Professor COOLEY. Course 11 should be accompanied by Course 10.

12. Thermodynamics. Hot-air and gas engines, air compressors, and refrigerating machines. *Two hours.* Assistant Professor WAGNER.

Course 12 must be preceded by Course 7 and by Courses 1 and 2 in physics.

15. Experimental Laboratory Work. *Two hours.* Professor COOLEY and Assistant Professor WAGNER.

Course 15 must be preceded by Course 7.

EITHER FIRST OR SECOND SEMESTER.

All the courses in shopwork are under the supervision of Superintendent C. G. TAYLOR, who gives in each of the Courses 1a, 2a, 3a, and 4a, lectures on workshop appliances and materials.

Courses 1a, 2a, 3a, 4a, and 6a, may also be elected by advanced students as 1b, 2b, 3b, 4b, and 6b.

- 1a. Shop Practice. Wood work and pattern work. Three sections. *Three hours.* Mr. PURFIELD.

In the first semester, Course 1a is intended primarily for students of mechanical engineering; in the second semester, for students of electrical and civil engineering.

- 2a. Shop Practice in Forging. Six sections. *Two hours.* Mr. ORR.

In the first semester, Course 2a is intended primarily for students of electrical and civil engineering; in the second semester, for students of mechanical engineering.

- 3a. Shop Practice in Iron Work. Three sections. *Three hours.* Mr. SMOOTS.

In the first semester, Course 3a is intended primarily for students of mechanical engineering; in the second semester, for students of electrical engineering.

- 4a. Shop Practice in Foundry Work. Four sections. *Two hours.* Mr. WINSLOW.

In the first semester, Course 4a is intended primarily for students of mechanical engineering; in the second semester, for students of electrical engineering.

- 6a. Design of Shop Machinery. *Three hours.* Superintendent C. G. TAYLOR.

In the first semester, Course 6a is intended primarily for students of electrical engineering; in the second semester, for students of mechanical engineering.

Course 6a must be preceded by Courses 1, 5, and 9 in drawing, and preceded or accompanied by Course 5 in mechanical engineering.

SECOND SEMESTER.

7. Dynamics of Machinery. Two sections. *Two hours.* Assistant Professor WAGNER.

Course 7 must be preceded by Course 6 in mathematics, and by Course 1 in physics.

9. Steam Engines. Valve gears. *Three hours.* Assistant Professor WAGNER.

Course 9 must be preceded or accompanied by Course 7.

13. Machinery and Mill Work. *Two hours.* Professor COOLEY.

14. Design of Engines and Boilers. *Two hours.* Professor COOLEY.

16. Steam Engineering. Steam generators, steam pumping and hoisting machinery. Practical work in the laboratory. *Three hours.* Professor COOLEY and Assistant Professor WAGNER.

Course 16 must be preceded by Course 8.

MARINE ENGINEERING.

Course 2 is designed for graduate students and undergraduates who have had the necessary preliminary training. Courses 1 and 3 are for graduates.

FIRST SEMESTER.

1. Naval Architecture. Professor COOLEY.

SECOND SEMESTER.

2. Marine Engines. *Four hours.* Professor COOLEY.
3. Ship-Building. Professor COOLEY.

MINING ENGINEERING.

SECOND SEMESTER.

1. Mining. *Five hours.* Professor PETTEE.

This course is open only to those who are candidates for the degree of Bachelor of Science in mining engineering, and must be preceded by Course 2 in mineralogy and Course 8 in geology.

METALLURGY.

FIRST SEMESTER.

2. Micro-metallography. The study of the microscopic structure of metals as related to their physical and chemical properties. Laboratory work with reading. *One hour.* Professor E. D. CAMPBELL.

Course 2 can be taken only by those who have taken Course 1 in metallurgy and Course 6 in analytical chemistry, and have received special permission.

SECOND SEMESTER.

1. Fuel and Refractory Material, Iron and Steel. *Three hours.* Professor E. D. CAMPBELL.

Course 1 must be preceded by Course 1 or Course 3 in analytical chemistry, or by Course 1 in general chemistry.

REQUIREMENTS FOR GRADUATION.

THE BACHELORS' DEGREES.

[For the Higher Degrees, see the chapter on the Graduate School. page 118.]

The degree of Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science, or Bachelor of Letters may be earned either on the credit system, or on the university system.

A description of the latter is given on page 102. The requirements for graduation on the credit system are as follows:

GRADUATION ON THE CREDIT SYSTEM.

Under the credit system, the Faculty recommend for graduation students who have secured a stated number of *Hours of Credit*, according to the requirements specified below,—a part of the subjects being prescribed and a part being chosen by the student. An *Hour of Credit* is ordinarily given for the satisfactory completion of work equivalent to one exercise a week during one semester, whether in recitations, laboratory work, or lectures. Lectures and recitations are usually one hour in length; but in courses of study that involve laboratory work, drawing, or other practical exercises, a longer attendance than one hour at an exercise is required in order to secure an hour of credit.

THE DEGREE OF BACHELOR OF ARTS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Arts, the student must secure *one hundred and twenty hours of Credit*. The prescribed portion of this work is as follows:

In Greek: Courses 1, 2, 3, 4, and either 5*a* or 5*b*.

In Latin: Courses 1, 2, 3, 4.

In French: Courses 1, 2.

In English: Courses 1, 2.

In Philosophy: Course 1 or Course 2.

In Mathematics: Courses 1*a*, 2*a*, 3*a*, 4*a**.

But after a student has completed Courses 1, 2, 3 in Greek, 1, 2 in Latin, and 1*a*, 2*a*, or an equivalent, in mathematics, he may, at his option, discontinue the study of any one of these three subjects. From the other courses offered he must choose and complete enough to secure *one hundred and twenty Hours of Credit*.

THE DEGREE OF BACHELOR OF PHILOSOPHY.

To obtain the recommendation of the Faculty for the degree of Bachelor of Philosophy, the student must secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

* Instead of these courses the student is permitted to take other courses in mathematics of equivalent amount.

In Latin: Courses 1, 2, 3, 4.

In French: (a) for those who entered *without* French, sixteen hours, including Courses 1, 2;

or (b) for those who entered *with* French, eight hours of advanced work.

In German: (a) for those who entered *without* German, sixteen hours, including Course 1 and options in Courses 2, 3, 4;

or (b) for those who entered *with* German, eight hours taken from options in Courses 3, 4.

In English: Courses 1, 2.

In Philosophy: Course 1 or Course 2.

In Mathematics: Courses 1a, 2a, 3a, 4a*.

But after a student has completed Courses 1, 2 in Latin, 1a, 2a, or an equivalent in mathematics, and eight hours in German (if he entered without German) or Courses 1 and 2 in French (if he entered without French), he may, at his option, discontinue the study of Latin, or mathematics, or the modern language (French or German) which he began in the University. From the other courses offered he must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*.

THE DEGREE OF BACHELOR OF SCIENCE (IN GENERAL SCIENCE).

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in General Science, the student must secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

In French: (a) for those who entered *without* French, sixteen hours, including Courses 1, 2;

or (b) for those who entered *with* French, eight hours of advanced work.

In German: (a) for those who entered *without* German, sixteen hours, including Course 1 and options in Courses 2, 3, 4;

or (b) for those who entered *with* German, eight hours, taken from options in Courses 3, 4.

In English: Courses 1, 2.

In Philosophy: Course 1 or Course 2.

In Mathematics: Courses 1a, 2a, or an equivalent.

In Physics: Course 1.

In General Chemistry: Courses 1, 4.

In Zoology, in Botany, or in General Biology: five hours.

In Physical or Biological Sciences: twenty-five hours additional.

* Instead of these courses the student is permitted to take other courses in mathematics of equivalent amount.

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From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*.

THE DEGREE OF BACHELOR OF SCIENCE (IN CHEMISTRY).

The requirements for the degree to be given on completion of the course in chemistry may be found on page 115.

THE DEGREE OF BACHELOR OF SCIENCE (IN BIOLOGY).

The requirements for the degree to be given on completion of the course in biology may be found on page 116.

THE DEGREE OF BACHELOR OF SCIENCE (IN CIVIL, MECHANICAL, MINING, OR ELECTRICAL ENGINEERING).

The requirements for the degree to be given on completion of a course in engineering may be found on pages 111 to 113.

THE DEGREE OF BACHELOR OF LETTERS.

To obtain the recommendation of the Faculty for the degree of Bachelor of Letters, the student must secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

In French: sixteen hours, including Courses 1, 2.

In German: sixteen hours, including Course 1 and options in Courses 2, 3, 4.

In English: Courses 1, 2, 3, 4.

In History: Courses 1, 2.

In Philosophy: Course 1 or Course 2.

In Mathematics: Course 1a.

But after a student has completed Courses 1, 2 in French and eight hours in German, he may, at his option, discontinue either of these two subjects. From the other courses offered he must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*.

GRADUATION ON THE UNIVERSITY SYSTEM.

ADMISSION OF UNDERGRADUATES.

1. The privileges of the university system are open to undergraduates who have completed their second year of residence, and have also secured at least sixty Hours of Credit, including all the prescribed work that can be taken in the first two years for some one of the Bachelors' degrees.

CONDITIONS FOR ENTERING UPON THE WORK.

2. Before beginning his work each undergraduate student must make application to the Registrar, and receive from him a certificate that he is entitled to enter upon the work. This application must be made before the student enters on the work of his third year of collegiate residence. In cases of exceptional character, however, the Faculty may grant permission to begin work on this system at a later date.

NATURE OF THE WORK.

3. Students who are working on the university system are not held to the completion of a fixed number of hours of work, but are required to pursue three distinct lines of study, one *major study* and two *minor studies*, and at the close of the work, to pass a special examination on those studies. The committee in charge of any undergraduate's work may, however, at their option, accept in lieu of the final examination in a minor study, approved work, in the line of that study or germane to it, done on the credit system, equivalent to one-fourth of the amount of work remaining to be completed by the student before graduation, if he had continued on the credit system. Members of the graduating class who have not more than thirty hours of work to complete in their last year of residence, are also allowed to take, in place of one-half the amount remaining to be completed, a major study on the university system.

SUPERVISION OF THE WORK.

4. The work of students carrying on their studies under the university system is supervised by committees of the Faculty. The members of the committee in each case consist of the professors in charge of the student's work, the professor in charge of the major study being chairman. On making his application to the Registrar, each student will be directed to the proper committee.

ATTENDANCE.

5. Students on the university system are subject to all the rules of the Department relating to attendance and to examinations. No student can be excused from any work that he has once entered upon, nor from any examinations, without the consent of the instructor in charge of the work. Examinations passed at the close of each semester on ordinary class work do not count as an equivalent or in abatement of the final examination to be passed for a degree, except as provided above in paragraph 3.

BACHELORS' DEGREES.

6. Undergraduates who have been enrolled as candidates under the university system for at least three semesters, may be admitted to a special examination for a Bachelor's degree at a date not earlier than the end of three and a half years of residence at the University. Before being recommended for any Bachelor's degree, however, they must have completed all the courses prescribed for that degree. The examination will be conducted by the regular committee and such other persons as they may ask to assist them.

ENGINEERING.

The University, in the Department of Literature, Science, and the Arts, offers to persons who wish to become professional engineers, thorough courses of study extending over about four years. In these courses of study, which are to a large extent distinct from the other work of the department, the aim of the University is to lay a foundation of sound theory, sufficiently broad and deep to enable its graduates to enter understandingly on the further investigation of the several specialties of the profession; and at the same time to impart such a knowledge of the usual

professional practice as shall make its students useful in any position to which they may be called. While the adaptation of theory to practice can be thoroughly learned only by experience, there are many matters in which the routine work of an engineering field party, office, or drafting room can be carried out on a greater or less scale in a training school. The technical branches are under the direct care of those who have had professional experience as well as a full scientific training, and in all particulars the courses embody as close an imitation of the requirements of active labor as the instructors who have the several branches in charge can devise.

REQUIREMENTS FOR ADMISSION.

Candidates for a degree in any of the courses in engineering will be examined in the following subjects:—

1. English Language, Composition, and Rhetoric.—The same as for the degree of Bachelor of Arts (see page 38).

2. Mathematics.—*Algebra and Geometry.*—The same as for the degree of Bachelor of Arts (see page 39).

Trigonometry.—Plane Trigonometry as given in Olney's Elements of Trigonometry, or an equivalent in other authors. A candidate who has had no opportunity for preparation in Trigonometry may be admitted, if satisfactory examinations are passed in the other subjects, but he will be required to make up the deficiency by extra work in the university classes in that subject.

3. History.—The same as for the course in General Science (see page 41).

4. Physics.—The same as for the degree of Bachelor of Arts (see page 39).

5. English Literature.—The same as for the degree of Bachelor of Letters (see page 43).

6. Chemistry, Geology, Zoology, Physiology, Physical Geography, and Astronomy.—In any *two* of these subjects (see page 42).

7. French, German, or Latin.—In 1895 and thereafter, candidates will be examined in *one* of the three languages, *French, German, or Latin*, the extent of the requirements in each case being the same as for the course in General Science (see page 41).

Students not candidates for a degree may be admitted to pursue such studies as they prefer, provided they are found prepared to join the classes in these studies. They will be expected to attend the lectures, recita-

tations, and examinations in the branches prescribed for the regular students, and will be required to take enough work to occupy them profitably.

COURSES OF INSTRUCTION.

The studies pursued in the earlier part of the course comprise, in *Mathematics*, algebra, trigonometry, analytic geometry, and the elements of differential and integral calculus; in *French* and *German*, an amount covering in all about two years of study; in *English*, a course in higher English grammar and composition; in *Physics* and *Chemistry*, the study of the elementary principles; and in *Drawing*, practice in geometrical and in mechanical drawing, and in the study of descriptive geometry.

The more technical subjects are taken up in the latter part of the course. Some of these subjects are of equal value to all classes of engineering students, such as analytical and applied mechanics, the strength and resistance of materials, and the metallurgy of the useful metals, especially iron and steel; others are adapted more particularly to the wants of the special students in the several courses. Their general scope may be seen from the following descriptive outline:

1. Drawing.—A very complete course in mechanical drawing is given, embracing plane projection drawing, isometric drawing, descriptive geometry, and the elementary principles of coloring and shading, with original problems executed in the drawing room. Examples from numerical data are always given when suited to the conditions of the problem in hand. Students in mechanical engineering are required to sketch pieces of machinery, and afterwards to make working drawings suitable for use in the shop. Problems peculiar to mining practice are also given. The plans of surveys, plane-table work, maps, designs in engineering construction, and the thesis drawings naturally come under this head. Instruction is also given in free-hand drawing, topographical drawing, ornamentation and lettering, shades and shadows, linear perspective, and drawing for stone cutting. The work in drawing occupies the student a part of almost every day throughout the course.

2. Surveying.—The work in surveying covers one full year and includes text-book work, lectures, recitations, and field practice. The theory of instruments and all the operations of surveying, laying out work, and computing, are explained in detail, and each student is required to make plats or maps and the necessary calculations of actual surveys. A varied and ample supply of instruments is available for use. The classes have practice in steel-tape measurements, ranging lines, measuring angles, running levels and curves of various kinds, and the measurement of earthwork; they make surveys, traverse them, calculate contents, divide areas, and, in general, perform the work of highway, street, and railroad surveying. They are given practice in every step of topograph-

ical surveying and drawing. They make surveys with the transit and stadia, plane-table, photographic camera, and other instruments; they reduce the notes, develop and finish the pictures, plot the work, and make finished drawings of all field operations. They also determine the meridian and take observations for latitude. This work is done during the fall months.

In the month of June the class is taken into the field as a railroad party for a period of four weeks continuously, where, under competent supervision, it goes through all the field work for a projected line, up to the point of actual construction, such as reconnoissance, preliminary and location survey, cross-sectioning, staking out, contouring, and topography. Plans and profiles, carefully made in the field by the students from the notes of the party, complete this portion of the subject, and serve to fix the practical application of the principles obtained from the text-books and lectures. In the above work are usually included a plane-table survey, triangulation, and some hydrography when the selected locality is favorable.

Instruction by lecture, text-book, and recitation is given, covering the special field of city engineering, and pointing out its connection with, and dependence upon, other branches of engineering work. The city engineer's duties with respect to various matters of public concern are explained. Among the subjects treated in this connection are streets and their present uses; sewers; waterworks; public franchises; assessments; bridges; building inspection; fires; and lighting. The instruction is not technical, but, as the work of the modern city engineer covers a wide field of engineering, an attempt is made to present some of the controlling relationships and to supplement and apply to this service what is taught in other parts of the course.

The principal text-books used are Johnson's *Surveying*, Searle's *Field Engineering*, and Rankine's *Civil Engineering*. All the more important books of reference are easily accessible to the student.

3. Strength and Resistance of Materials.—A course of recitations and lectures continuing through the first half-year is devoted to this subject, and is attended by all the engineering students. The action of the different materials under applied forces, the distribution of stress, and the proper proportions to be given to the different parts of structures in order that they may safely fulfil their several functions, are carefully studied.

4. Theory of Structures.—Roof and bridge trusses, in wood and iron; arches, in wood, iron, and stone; trestles; brick and stone masonry; foundations; tunnels; and, in general, the whole theory of structures are discussed. In this course, as in the preceding (3), Rankine's *Civil Engineering* is used as a text-book, supplemented by full explanations, additional notes, lectures, examples, and problems.

A complete course of instruction is also given in the graphical analysis of roof and bridge trusses and arches, as recently developed and applied. The student is made familiar with both the analytical and graphical methods of treatment and thus possesses ready proof of the accuracy of his calculations.

5. Hydraulics.—The law of the flow of water through orifices and pipes and over weirs, the gauging of streams and rivers, the designing of works for water supply, drainage, and sewerage, the laying out of canals, and the subjects of river and harbor improvements are treated in this course.

6. Machinery, Prime Movers, and Millwork.—A course of instruction is given in mechanism, or the general principles of machinery, involving the study of gearing, screws, cranks, and levers, and the dynamics of machinery. In the study of prime movers, special attention is given to turbine and other water motors, and to steam engines. In the theory of machine construction, problems involving the strength and design of machines, and the materials used in their construction, and also involving the application of the principles of electricity, are studied at length, in connection with such examples as illustrate the best practice. The instruction in millwork covers the distribution of power and the arrangement of shafting and machinery in manufacturing establishments. Practical problems involving the strength of shafting, belting, and gearing are fully treated. Tests are made to determine the efficiency of machines, and the value of lubricants.

7. Designs in Engineering and in Machine Construction.—Contemporaneously with the study of theory students are required to work out problems in design. They are furnished with the usual data for a design, and the kind or type of structure or machine is indicated. They are then expected to make the necessary calculations, paying particular attention to proportioning the different parts so as to secure strength, simplicity, and effect, and to present at a specified date complete working drawings, giving full details, accompanied by bills of materials, estimates, and specifications.

8. A course in Thermodynamics embraces the study of the principles governing the action of heat engines in general, hot-air and gas engines, air compressors, compressed-air engines, and refrigerating apparatus.

9. Steam Engineering.—The work in this branch covers the practical use of steam. Furnaces and boilers are studied with reference to proper combustion of fuel, to securing maximum evaporative efficiency; and to proportioning the parts for strength, durability, and accessibility for cleaning and repairs. The care and management of engines and boilers, both in use and out of use, are fully considered. A study is made of the principal steam pumps and pumping engines. The practical application

of steam to heating and ventilating purposes is treated by lectures, and by inspection of actual plants. Tests are made to determine the value of fuels, quality of steam, and the efficiency of furnaces, boilers, and engines.

10. Laboratory Work.—The laboratory work embraces experimental courses in the mechanical laboratory, and the practical courses in the various work shops. Instruction is given in the principles governing the action of cutting tools and the principal machine and hand tools used in the shop. Lectures are given on pattern making, moulding, and founding, covering the principal features of each.

The *Shop Practice* covers the application of principles previously studied. It comprises the actual manipulation of the tools used in working metal and wood, and in moulding. The student is required to do work in pattern making and moulding in green sand, in dry sand, and in loam, and to charge and have the management of the cupola and brass furnace during the operations of casting. Careful attention is given to the operations of founding and to making composition metals for specific purposes. The student is also required to put in practice, at the blacksmith's forge, his knowledge of the elementary principles of forging, and to forge and temper his own cutting tools. By working with iron and steel of different qualities the student becomes familiar with all grades of those materials. Practice is also afforded in soldering, brazing, and steam-fitting.

11. Marine Engineering and Naval Architecture.—The instruction in this branch comprises the study of marine steam engines and propelling instruments, the hydraulics of ship-building, buoyancy, metacentre, stability and trim, weight and centre of gravity, waves and rolling, structural strength, speed and resistance, propulsion by sails and steam engines, laying-off and taking-off, and other topics.

12. Economic Geology.—Particular attention is paid to the geology of mines and mineral districts, and to the modes of occurrence and distribution of mineral substances that have an economic or commercial importance.

13. Mining.—In this branch the instruction is given mainly by lectures. The machines in use at the best mines are described, and the mutual relations of parts explained and illustrated with the aid of plates and diagrams. The different operations connected with the discovery, opening, development, and working of mines are all studied in their proper order.

14. Metallurgy.—A course of instruction by lectures and recitations is given upon the subjects of fuel, refractory material, iron and steel, silver, gold, and aluminum, extending over an entire year. The lectures are illustrated by charts and drawings of furnaces and appliances used, and by samples of furnace products.

15. Electrical Engineering.—The special electrical courses, addi-

tional to the elementary study of the subject, are devoted to primary and secondary generators, electrometallurgy, electrical units and methods of measurements, dynamo-electric machinery, the alternate-current transformer, arc and glow lamps, photometry, and the distribution of electricity and transmission of power. In addition, elective courses in mathematical electricity are offered.

The laboratory work in electricity is devoted mainly to the testing of primary and secondary batteries, to practice in making electrical measurements of precision by all the best methods, to setting up dynamos, motors, and storage batteries and testing them for efficiency, to the investigation of transformers for efficiency and for hysteresis curves, to photometry of both arc and glow lamps, and to special investigations connected with the preparation of a thesis.

16. Visits of Inspection.—As often as practicable, visits are paid to neighboring manufacturing establishments, and to electric-light and electric-power stations, for the purpose of acquiring a knowledge of the methods employed in building, in the construction of bridges, machinery, and ships, and the best practice in electrical manufacturing and engineering on a large scale.

FACILITIES FOR INSTRUCTION.

The collections for illustrating the instruction given comprise models, drawings, photographs, lithographs, and blue prints representing trusses, arches, and details of construction in iron, wood, and stone; also shapes of iron, working models of turbines and engines, and working drawings of a number of bridges. These collections are receiving additions from year to year, by gift and purchase, and are invaluable to the student.

Tests of engines and boilers, and of machinery in general will be made on request, and the profit of such work devoted to extending the facilities of the engineering laboratory. The data of all experiments and tests made are kept in the laboratory records.

All the laboratory work is on a practical basis, and is done as nearly as possible as it would be done in any well arranged manufacturing establishment. There is also a large and convenient metallurgical laboratory connected with the chemical laboratory, amply supplied with assay furnaces and other appliances such as are usually found in laboratories of this description. The latest and best books on professional subjects are added yearly to the library, where they are accessible to all; and frequent references are made to them in the class room as the various subjects are brought forward.

EXAMINATIONS.

Examinations, usually in writing, are held at the end of each semester, but the classes are liable to be examined at any time, without notice, on any portion of their previous work.

REQUIREMENTS FOR GRADUATION.

To earn the degree of Bachelor of Science for a course in engineering the student must secure one hundred and twenty Hours of Credit* in a prescribed course of study, as given below, and must present a satisfactory thesis. The diploma given indicates the line of study pursued.

Bachelors of Arts, of Philosophy, of Science, and of Letters, of this University, and graduates of any other reputable college, are recommended for the same degree with the regular students, after attendance on, and a satisfactory examination in, the technical subjects alone of the several courses. These subjects can be completed in two years. The culture imparted by classical or other liberal training will be found to have its uses for one engaged in engineering work, and the previous discipline of the faculties in exact research will enable the professional student to master more easily the requirements of the course. All the time the student can devote to general studies before taking up specialties will be well spent.

The requirements are as follows:—

1. *In Civil Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in Civil Engineering, the student must secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

In French and German: twenty hours, to be selected by the student from all the courses open to him in these two languages.

In English: Course 1.

In Mathematics: Courses 1, 2, 3, 4, 6.

In Physics: Course 1.

In General Chemistry: Course 1; or in Analytical Chemistry: Course 3.

In Mineralogy: Course 1.

In Astronomy: Course 4.

In Drawing: Courses 1, 4, 5, 6, 14.

In Surveying: Courses 1, 2, 3, 5, 6.

In Civil Engineering: Courses 1, 2, 3, 4, 5, 6, 7, 8, 9.

In Mechanical Engineering: Course 8a.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*. He must also prepare a satisfactory thesis.

2. *In Mechanical Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in Mechanical Engineering, the student must

* For explanation of the term Hour of Credit, see page 52; and for further information in regard to the courses prescribed for graduation, see pages 51 to 53.

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secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

In French and German: twenty hours, to be selected by the student from all the courses open to him in these two languages.

In English: Course 1.

In Mathematics: Courses 1, 2, 3, 4, 6.

In Physics: Courses 1, 2.

In General Chemistry: Course 1; or in Analytical Chemistry: Course 3.

In Drawing: Courses 1, 5, 6, 9.

In Surveying: Course 4.

In Civil Engineering: Courses 3, 5, 9.

In Mechanical Engineering: Courses 1a, 2a, 3a, 4a, 5, 6a, 7, 8a, 9, 10, 11, 12, 13, 14, 16.

In Metallurgy: Course 1.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*. He must also prepare a satisfactory thesis.

3. *In Mining Engineering.*

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in Mining Engineering, the student must complete one of the two following sets of requirements:

1. MINING.

In French and German: twenty hours, to be selected by the student from all the courses open to him in these two languages.

In English: Course 1.

In Mathematics: Courses 1, 2, 3, 4, 6.

In Physics: Course 1.

In General Chemistry: Course 1.

In Analytical Chemistry: Courses 1, 4, 9.

In Mineralogy: Course 2.

In Geology: Courses 8, 9.

In Drawing: Courses 1, 5.

In Surveying: Course 1.

In Civil Engineering: Courses 1, 2, 3, 5.

In Mechanical Engineering: Course 8a.

In Mining Engineering: Course 1.

In Metallurgy: Course 1.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*. He must also prepare a satisfactory thesis.

II. METALLURGY.

In French and German: twenty hours, to be selected by the student from all the courses open to him in these two languages.

In English: Course 1.

In Mathematics: Courses 1a, 2a.

In Physics: Course 1.

In General Chemistry: Course 1.

In Analytical Chemistry: Courses 1, 4, 6, 7, 9.

In Mineralogy: Course 2.

In Geology: Courses 8, 9.

In Drawing: Courses 1, 5.

In Mechanical Engineering: Courses 1a, 2a, 3a.

In Mining Engineering: Course 1.

In Metallurgy: Course 1.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*. He must also prepare a satisfactory thesis.

4. In Electrical Engineering.

To obtain the recommendation of the Faculty for the Degree of Bachelor of Science, for a Course in Electrical Engineering, the student must secure *one hundred and twenty Hours of Credit*. The prescribed portion of this work is as follows:

In French and German: twenty hours, to be selected by the student from all the courses open to him in these two languages.

In English: Course 1.

In Mathematics: Courses 1, 2, 3, 4, 6.

In Physics: Courses 1, 2, 3a, 4, 5, 8a, 9, 13, 14.

In General Chemistry: Course 1; or in Analytical Chemistry: Course 3.

In Drawing: Courses 1, 5, 9.

In Civil Engineering: Course 5.

In Mechanical Engineering: Courses 1a, 2a, 3a, 4a, 5, 6a, 7, 8a.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*. He must also prepare a satisfactory thesis.

THE DEGREES OF CIVIL ENGINEER. MECHANICAL ENGINEER, MINING ENGINEER, AND ELECTRICAL ENGINEER.

The conditions on which the degree of Civil Engineer, as a second degree, is conferred, are as follows:

The degree of Civil Engineer may be conferred upon Bachelors of Science of this University, who have taken the degree for a course in civil engineering, if they furnish satisfactory evidence that they have pursued

further technical studies for at least one year, and in addition, have been engaged in professional work, in positions of responsibility, for another year. The first of the above requirements may be satisfied by pursuing at the University, under the direction of the Faculty, a prescribed course of study for an amount of time, not necessarily consecutive, equivalent to a college year. If the candidate does not reside at the University, his course of study must be approved in advance by the professor of civil engineering, and he must prepare a satisfactory thesis on some engineering topic, to be presented, together with a detailed account of his professional work, one month, at least, before the date of the annual Commencement at which he expects to receive the degree.

The conditions on which the degrees of Mechanical Engineer, Mining Engineer, and Electrical Engineer, as second degrees, are conferred upon Bachelors of Science of this University who have taken the degree for a course in mechanical engineering, in mining engineering, or in electrical engineering, are analogous in character and in amount to those given above for the degree of Civil Engineer.

CHEMISTRY.

A college course is arranged with chemistry as a principal subject, giving preparation for a pursuit in chemical science or in the chemical arts, and leading to a special degree. Studies can be so elected in this course as to prepare for any desired service in chemistry, whether for teaching and research, for some branch of technology and the related investigations, or for duty as an analyst at large. For higher chemical teaching and research it is more especially needful that graduate studies should be taken in addition to those required for the bachelor's degree.

The obligatory studies are so apportioned with those under limited election as to insure to all graduates from this college course the studies indispensable to every chemist, together with an extent of chemical training sufficient for independent action, while not unduly restricting chemical specialties. The time remaining for unlimited election of studies enables the student either to take up other branches of learning, or to strengthen some portion of the principal subject.

After the first college year, devoted in good part to the modern languages and mathematics, the student enters at once upon laboratory studies. These continue through the remaining college time, together with class work in every study, and stated use of chemical literature in the library. Something in the way of initial investigation is also a requirement.

Candidates for the degree of Bachelor of Science for a course in chemistry are required to pass the same examinations for admission as

candidates for the degree of Bachelor of Science for the course in general science. (See page 41.)

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in Chemistry, the student must secure *one hundred and twenty Hours of Credit*.* The prescribed portion of this work is as follows:

In French: (a) for those who entered *without* French, Courses 1, 2, 4; or (b) for those who entered *with* French, Course 4.

In German: (a) for those who entered *without* German, eight hours, including Course 1 and one option in Course 2; or (b) for those who entered *with* German, five hours, taken from options in Courses 3, 4.

In English: Course 1.

In Mathematics: Courses 1a, 2a.

In Physics: Course 1.

In General Chemistry: Courses 1, 4.

In General Chemistry: Course 7; or in Analytical Chemistry: Course 17, 22, or 24.

In Analytical and Organic Chemistry: Courses 1, 4, 10, 11.

In Chemistry: additional, twenty-five hours.

In Mineralogy: Course 2.

In Geology: Courses 1, 9.

In Drawing: Course 3 or Course 4.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*.

A register of graduates and other former students engaged as chemists and teachers of chemistry, has been published, and copies can be obtained by addressing the Director of the Chemical Laboratory.

BIOLOGY.

A course of study is provided for students who wish to devote their time largely to biological work, either as a preparation for the study of medicine† or with a view to teaching or engaging in biological research. The course leads to the degree of Bachelor of Science.

In the first year, modern languages and mathematics, and in the second year, elementary physics and chemistry are required, as being absolutely essential to the successful prosecution of an extended course in science. Zoology, botany, and physiology are the most prominent subjects of the course, but full opportunity is given for extended work in physics, chemistry, palæontology, and other sciences. The laboratories of the Uni-

* See foot-note on page 111.

† See chapter on the Department of Medicine and Surgery, page 142.

versity are provided with the necessary facilities not only for ordinary biological work, but for somewhat extended research, and every encouragement is given to qualified students to devote themselves to original investigations.

Candidates for the degree of Bachelor of Science for a course in biology are required to pass the same examinations for admission as candidates for the degree of Bachelor of Science for the course in general science. (See page 41.)

To obtain the recommendation of the Faculty for the degree of Bachelor of Science, for a Course in Biology, the student must secure *one hundred and twenty Hours of Credit*.* The prescribed portion of this work is as follows:

In French: (a) for those who entered *without* French, eight hours; or (b) for those who entered *with* French, four hours.

In German: (a) for those who entered *without* German, eight hours; or (b) for those who entered *with* German, four hours.

In English: Course 1.

In Philosophy: Course 1 or Course 2.

In Mathematics: Courses 1a, 2a.

In Physics: Course 1.

In General Chemistry: Course 1.

In General Biology: Courses 1, 2.

In Biological Work: additional, twenty-five hours.

From the other courses offered the student must choose and complete enough to secure in all *one hundred and twenty Hours of Credit*.

Candidates for the degree of Bachelor of Science for a course in biology are strongly recommended to devote as much time as practicable in the early part of their course to the modern languages, mathematics, and the physical sciences. It is expected that they will arrange their work, not only in biology, but in other subjects, in accordance with a definite plan fixed after conference with the instructors in charge.

THE SCIENCE AND THE ART OF TEACHING.

The aims of the University in providing instruction in the Science and the Art of Teaching, are:

1. To fit University students for the higher positions in the public school service.

It is a natural function of the University, as the head of our system of public instruction, to supply the demand made upon it for furnishing the large public schools with superintendents, principals, and assistants.

* See foot-note on page 111.

Year by year these important positions are falling more and more into the hands of men that have received their education in the University. Till recently, the training given to our graduates has been almost purely literary; it has lacked the professional character that alone gives special fitness for the successful management of schools and school systems. Now, however, the University offers students that wish to become teachers ample facilities for professional study.

2. To promote the study of educational science.

The establishment of a chair of teaching is a recognition of the truth that the art of education has its correlative science; and that the processes of the school room can become rational only by developing and teaching the principles that underlie these processes. Systems of public instruction are everywhere on trial, and the final criteria by which they are to stand or fall must be found in a philosophical study of the educating art.

3. To teach the history of education, and of educational systems and doctrines.

The supreme right of the school is to grow; and much hurtful interference might be avoided by ascertaining the direction of educational progress and the history of educational thought.

4. To secure to teaching the rights, prerogatives, and advantages of a profession.

5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relations with the University.

THE TEACHER'S DIPLOMA.

The Teacher's Diploma is given to a student at the time of receiving a Bachelor's degree, provided he has completed three courses of study offered by the professor of the science and the art of teaching, viz., Courses 1 and 2, and some three-hour Course, and, also, at least one of the Teachers' Courses offered by other professors, and by special examination has shown such marked proficiency in the course chosen as qualifies him to give instruction. The Diploma is also given to a graduate student at the time of receiving a Master's or a Doctor's degree, provided he has pursued teaching as a major or minor study and has also taken a Teacher's Course in some other department.

TEACHER'S CERTIFICATE.

By authority of an act of the state legislature, passed in 1891, the Faculty of this Department give a Teacher's Certificate to any person who takes a Bachelor's, Master's, or Doctor's degree and also receives a Teacher's Diploma as provided above. By the terms of the act, the certificate given by the Faculty "shall serve as a legal certificate of qualifi-

cation to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

COURSES PREPARATORY TO PROFESSIONAL STUDY.

In some of the subjects taught in this department of the University, the courses offered are practically identical with those required for degrees in the professional schools. A student in this department, by making a proper choice of electives, may thus qualify himself for advanced standing in professional study. For information in regard to the requirements for advanced standing in each case, students are referred to the Announcements of the several departments.* If any student in this department wishes to arrange his work in such a way as, after receiving his Bachelor's degree, to secure admission to the third year in medicine, he must make his intention known to the President as early as the beginning of his last year of undergraduate work and obtain special permission to be registered also as a student in medicine.

THE GRADUATE SCHOOL.†

The Graduate School was established in 1892. Its purpose is to bring into greater prominence the numerous advanced courses of instruction that have been developed from the continual extension of the elective system; to secure a more efficient and systematic administration of this higher work; and to provide as far as possible for the separate instruction of graduate students. The school is organized within the Department of Literature, Science, and the Arts, and its management is entrusted to an Administrative Council, chosen from the Faculty of the Department. For the year 1894-95 the Administrative Council consists of the President of the University, together with the heads of departments of instruction.

ADMISSION AND REGISTRATION.

All applicants for admission to the Graduate School must first report to the President and present their credentials.

* Compare page 141.

† A special Announcement of the Graduate School was issued in the summer of 1894. Copies of this Announcement can be had by addressing Mr. JAMES H. WADE, Steward of the University.

The privileges of the school are open to graduates of the Department of Literature, Science, and the Arts of this University, and to graduates of other universities and colleges, who satisfy the Administrative Council that they are qualified to pursue with profit the advanced courses of study offered in the school.

Graduates of institutions, where the undergraduate courses of study are not substantially equivalent to the course prescribed at this University, will ordinarily be required to do an additional amount of undergraduate work, or to prolong their term of residence, before being admitted to full candidacy for a higher degree.

Graduates of this University, or of other institutions, who do not wish to become candidates for a degree, may be admitted and registered as special resident graduates.

Graduates of other institutions who are candidates for a bachelor's degree in this Department of the University are not registered in the Graduate School.

COURSE OF INSTRUCTION.

The courses of instruction offered in the Department of Literature, Science, and the Arts, are described on pages 51 to 99. In all branches of study provision is made for the instruction of graduate students. Graduate students who do not wish to work for a degree, are admitted to any of these courses upon satisfying the professor in charge that they are qualified to pursue the work to advantage.

The work of candidates for a higher degree is not confined strictly to the courses referred to above. Each student chooses three lines of study, a major study and two minor studies, which, after approval by the Council, he pursues under the immediate supervision of a special committee, consisting of the professors in charge of the studies chosen, the professor in charge of the major study being chairman. The nature of the work prescribed, and of the committee's oversight, varies in different cases according to the subjects chosen, the degree sought, and the previous attainments of the student. The work may consist of attendance upon certain specified courses, or of reading to be done privately and reported upon, or of an original research to be carried on more or less independently. In general, the method followed is that of the so-called university system, described on page 102, with modifications as circumstances may make advisable. The essential features of this system are specialization of study, a final examination, and a thesis. A thesis is always required of a candidate for a doctor's degree; for a master's degree, the requirement may be waived at the discretion of the committee in charge of the student's work. The final examination for a degree is conducted under the direction of the committee, and the result of the examination is reported to the Faculty of the Department.

DEGREES CONFERRED.

The higher degrees conferred are those of Master of Arts, Master of Science, Master of Philosophy, Master of Letters, Doctor of Philosophy, Doctor of Science, Doctor of Letters, Civil Engineer, Mechanical Engineer, Mining Engineer, and Electrical Engineer.

THE MASTERS' DEGREES.

The Masters' degrees are open to Bachelors of Arts, Science, Philosophy, or Letters, of this University, or of any other reputable university or college; a residence of at least one year at this University is required, except as stated below.

A student who has received a Bachelor's degree may be recommended for the corresponding Master's degree after completing the prescribed term of residence at this University, and passing an examination on his course of study as approved by the Administrative Council. A thesis may, or may not, be included in the requirements for the degree, as the committee in charge of the student's work may determine.

A student properly qualified may be permitted to pursue at the same time studies for a Master's degree, and studies in any of the professional schools, on condition that the term of study and residence in this Department be extended to cover at least two years.

Non-Residents.—A Bachelor of Arts, Bachelor of Science, Bachelor of Philosophy, or Bachelor of Letters, of this University, who has already completed a portion of the term of residence prescribed for a Master's degree, may be allowed to continue his studies for the degree without further residence at the University, on such conditions as the Administrative Council may determine in each case. *This privilege is restricted to graduates of this University.*

THE DOCTORS' DEGREES.

1. The degree of Doctor of Philosophy is open to persons that have received the degree of Bachelor of Arts, or of Bachelor of Philosophy; the degree of Doctor of Science to persons that have received the degree of Bachelor of Science; and the degree of Doctor of Letters to persons that have received the degree of Bachelor of Letters; but no student will be accepted as a candidate for the Doctor's degree who has not a knowledge of French and German sufficient for purposes of research.

2. It is not intended that the Doctors' degree shall be won merely by faithful and industrious work for a prescribed time in some assigned course of study, and no definite term of required residence can be specified. As a rule three years of graduate study will be necessary, the last two semesters of which must be spent at this University. The period of three years, however, may be shortened in the case of students who, as

undergraduates, have pursued special studies in the direction of their proposed graduate work.

3. No student will be enrolled as a candidate for a Doctor's degree until he has been in residence as a graduate student for at least one year. [This rule may be waived in the case of those who come properly accredited from a Graduate School of some other University, and of those who, as undergraduates in this University, have shown special proficiency in the line of their proposed graduate work.]

4. A student wishing to become a candidate for a Doctor's degree must make a formal application to be so enrolled at least two semesters prior to the time of presenting himself for examination.

5. A candidate for a Doctor's degree must take a major study that is substantially co-extensive with some one department of instruction in the University. He must also take two minor studies, one of which may be in the same department as the major, but involving a more thorough treatment of the same. Both minors must be cognate to the major, and all studies must be subject to the approval of the Administrative Council.

6. THE THESIS.—The thesis is of great importance. It must exhibit creditable literary workmanship and a good command of the resources of expression; but it must depend for acceptance more upon its subject-matter than upon its formal or rhetorical qualities. It must be an original contribution to scholarship or scientific knowledge. The inquiry should be confined within narrow bounds. The treatment should be as concise as the nature of the matter permits, and show familiarity with the history of the problem treated, with the literature bearing upon it, and with the latest methods of research applicable to it. Every thesis should contain a clear introductory statement of what it is proposed to establish or to investigate, and likewise a final resumé of results. It should also be accompanied by an index of contents and a bibliography of the subject. It is expected that the preparation of an acceptable thesis will usually require the greater part of one academic year.

THE DEGREES OF CIVIL ENGINEER, MECHANICAL ENGINEER,
MINING ENGINEER, AND ELECTRICAL ENGINEER.

The requirements for these degrees may be found on page 113.

SPECIAL REGULATIONS RELATING TO THE HIGHER DEGREES.

1. Applicants for an advanced degree are required to announce to the Council, through the President, as early as the fifteenth of October of each year, the particular branches of study to which they wish to give special attention. The supervision of their work will then be entrusted to the proper committee.

2. The subject of the thesis for a doctor's degree must be chosen, and must be approved by the committee concerned, as early as the first of November of the college year in which the applicant expects to take the degree; and the subject of the thesis for a master's degree, when required, must be chosen and approved as early as the first of December.

3. The thesis must be completed and put into the hands of the chairman of the proper committee as early as the first of May of the year in which the applicant expects to take the degree.

4. The thesis must be prepared for close scrutiny with reference not only to its technical merits, but also to its merits as a specimen of literary workmanship. It must be preceded by an analytical table of contents and a carefully prepared account of the authorities made use of.

5. The thesis must be read and defended in public at such time as the Council may appoint, and in case of a Master's degree, a bound copy, either written or printed, must be deposited in the University library.

6. Candidates for the degree of Doctor of Philosophy, Doctor of Science, or Doctor of Letters, in case of the acceptance of their theses, are required to have the accepted theses printed in full or in part as may be approved by the responsible committee, and to present twenty-five copies to the University library. To guarantee the printing of the thesis, every candidate for the Doctor's degree will be required to deposit with the Treasurer of the University, between the date of the acceptance of his thesis and the time fixed for his examination, the sum of fifty dollars, which deposit will be returned to him in case of failure to pass his examination, or whenever he shall cause his thesis to be printed at his own expense, or shall have it published in a form and under auspices approved by the responsible committee.

In the printing of the thesis at his own expense, the candidate will be expected to use good substantial paper and slightly typography. A page four inches by six, with outside margins of at least one inch, is recommended.

RULES AND REGULATIONS OF THE DEPARTMENT.

The following rules and regulations relate to admission conditions, election of studies, examinations, work in other departments, attendance, and discipline.

I. ADMISSION CONDITIONS.

All students are regarded as strictly on probation, until they have removed all conditions incurred in the examinations for admission to the Department. All such conditions must be removed during the year following the date of the examination. Students who have any admission con-

ditions outstanding at the beginning of their second year of residence will not be allowed to join their classes until such conditions are removed.

II. ELECTION OF STUDIES.

I. The maximum number of hours a week a student may elect with out special permission of the Faculty is sixteen, but a student will do well to limit himself to the fifteen hours a week necessary to complete a course in four years.

In cases of exceptional proficiency additional hours are granted by the Faculty on especial request; but in all cases requests for permission to take an additional number of hours must be made in writing, and must be deposited in the Registrar's box on or before the *first Monday* of the semester during which the additional work is desired.

N. B. Students who are making up preparatory studies in the Ann Arbor High School are required to deduct the time spent in that school from the maximum number of hours allowed them in the University.

II. For students in their first year the following schemes are recommended, or such parts of them as may be needed in making up a suitable amount of work.

1. For candidates for the degree of Bachelor of Arts:

First semester: Greek, four hours; Latin, three hours; Mathematics, three hours; French, four hours; English, two hours.

Second Semester: Greek, four hours; Latin, four hours; Mathematics, four hours; French, four hours.

2. For candidates for the degree of Bachelor of Philosophy:

First Semester: Latin, three hours; Mathematics, three hours; French and German, eight hours; English, two hours.

Second Semester: Latin, four hours; Mathematics, four hours; French and German, eight hours.

3. For candidates for the degree of Bachelor of Letters:

First Semester: Mathematics, three hours; French, four hours; German, four hours; History, or other studies, five hours.

Second Semester: French, four hours; German, four hours; English, two hours; History, or other studies, six hours.

4. For candidates for the degree of Bachelor of Science (in General Science):

First Semester: Mathematics, three hours; French and German, eight hours; other studies, five hours.

Second Semester: Mathematics, four hours; French and German, eight hours; English, two hours; other studies, two hours.

5. For candidates for the degree of Bachelor of Science (in Chemistry and in Biology):

The same as for the course in General Science, except as modified by differences in requirements in French and German.

6. For candidates for the degree of Bachelor of Science (in Engineering):

a. In Civil Engineering:

First Semester: Mathematics, four hours; Mineralogy, two hours; Drawing, five hours; French, German, or other studies, five hours.

Second Semester: Mathematics, four hours; English, two hours; Drawing, three hours; Surveying, three hours; French, German, or other studies, four hours.

b. In Mechanical Engineering and in Electrical Engineering:

First Semester: Mathematics, four hours; Drawing, two hours; Mechanical Engineering, five hours; French, German, or other studies, five hours.

Second Semester: Mathematics, four hours; English, two hours; Drawing, three hours; French, German, Chemistry, or other studies, seven hours.

c. In Mining Engineering:

First Semester: Mathematics, three or four hours; Drawing, two or three hours; French, German, or other studies, sufficient to make a total of sixteen hours.

Second Semester: Mathematics, four hours; English, two hours; Drawing, three hours; French, German, or other studies, seven hours.

III. Except as provided in (I) and (II) each student may elect his studies and may pursue them in any order he may choose, subject only to the following restrictions:

a. Before entering on any study the student must give the professor in charge satisfactory evidence that he is prepared to pursue it with advantage.

b. If he is a candidate for a degree, he must at some time take all the studies "prescribed" for the degree he seeks.

c. No student will be allowed to elect merely a part of a course without special permission of the Faculty.

d. No credit will be allowed to a student for work in any course, unless the election of the work is formally made and reported to the Registrar before the work is begun.

e. After the second Monday of each semester no study can be taken up or dropped without special permission of the Faculty.

f. The Faculty will require a student to drop a part of his work at any time, if in their opinion he is undertaking too much; or to take additional work, if they think he is not sufficiently employed.

g. The Faculty reserve the right to withdraw the offer of any study not chosen by at least six persons.

IV. After matriculation a student cannot, without special permission of the Faculty, be admitted to examination in any one of the courses

given, until he has received in the University the regular instruction in such course.

V. The student is urged to make his choice of studies with care, and with reference to some plan. The members of the Faculty will be ready to give advice and assistance in this regard.

VI. Students expecting to graduate in any given year must report to the Registrar at the opening of the year and ascertain what prescribed work, if any, is still lacking for the degree sought.

III. EXAMINATIONS.

1. All students of this Department, whether candidates for a degree or not, if at work upon the credit system, are required to attend all the examinations in the courses of study they pursue.

2. No student absent from any regular examination in any course of study that he may have pursued, will be allowed to take such omitted examination before the next regular examination in that course. In cases of great urgency, however, the Faculty may grant students special permission to be examined at an earlier date.

3. No student whose examination in any course is reported as "*Incomplete*," will receive credit for that course until after the examination has been completed. In case, however, the examination be not completed within one year, the unfinished course will be regarded and treated as "*Not Passed*."

4. Any student reported as passed "*Conditionally*" in any course, must remove the condition within one year from the date of the examination in which it was incurred; otherwise, the course passed conditionally will be regarded and treated as "*Not Passed*."

5. Any student reported as "*Not Passed*" in any course, will receive no credit for that course until he has again pursued it as a regular class exercise and has passed the regular examination in the same.

IV. RELATION TO OTHER DEPARTMENTS.

1. Candidates for a degree in this Department of the University, who wish to pursue studies in any other department, may be granted that privilege, provided they lack, at the beginning of the academic year, no more than sixteen hours of graduation and take no more than eight hours of work in any given semester in this Department in connection with the semester's work in the other department.

2. All students admitted from other departments of the University to the privileges of this Department are regarded in the class room as members of this Department, and are required to pass the regular examinations with the classes in which they are enrolled. Violations of this requirement will be deemed a forfeiture of the privileges of this Department.

but this rule is not to be interpreted as applying to those who are permitted to attend lectures or other exercises without being enrolled.

V. ATTENDANCE AND DISCIPLINE.

The State of Michigan extends the privileges of the University without charge for tuition, to all persons of either sex, who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Students are not allowed to absent themselves from town without permission from the President.

Such delinquencies as tardiness, absence, deficiencies, and offences against good order, in the several departments of instruction, are ordinarily dealt with by the instructor in charge of the department in which they occur. Flagrant cases are reported to the Faculty for adjudication.

Students are suspended or dismissed, whenever in the opinion of the Faculty they are pursuing a course of conduct seriously detrimental to themselves or to the University.

The following is a By-Law of the Regents:

“Whenever any Faculty is satisfied that a student is not fulfilling, or likely to fulfil, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardians, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time he shall be dismissed.”

FELLOWSHIPS AND SCHOLARSHIPS.

Except for the Elisha Jones Classical Fellowship, the University has no funds available for fellowships or scholarships; but the Alumni Association of the Department has taken steps for the collection of a fund to be used in maintaining fellowships.

The alumni of the Detroit High School have established several scholarships open to graduates of that school. The first steps toward raising a fund for this purpose were taken in 1891; and the Detroit High School Scholarship

Fund Association has been recently incorporated. Six students now enjoy the benefit of the fund. One of the scholarships is known as the Mary C Leete Memorial Scholarship, in memory of a teacher who has recently died.

Four scholarships, with an annual income of two hundred and fifty dollars each, established by Mr. Arthur Hill, of Saginaw, W. S., and known as the John Moore, the Wells-Stone, the Alonzo L. Bingham, and the Otto Roeser scholarships, are open to graduates of the Saginaw High School.

The Class of 1894 has established a scholarship fund, but the proceeds of the fund are not yet available.

The sum of five hundred dollars has been given by Messrs. Parke, Davis and Company, of Detroit, for the support of a Fellowship in Chemistry in 1895-6.

THE ELISHA JONES CLASSICAL FELLOWSHIP.

In 1889, the Elisha Jones Classical Fellowship was established by Mrs. Catherine E. Jones, in memory of her husband, Professor Elisha Jones, a graduate of this University in the class of 1859, and for many years a member of the Literary Faculty. Its purpose is "to encourage patient, honest, accurate study of the languages, literature, and archæology of ancient Greece and Rome." Its present income is \$500 a year.

A candidate for this Fellowship must have spent at least three entire semesters as a student in this Department of the University and must be a Bachelor of Arts of this University, of not more than two years' standing. Appointments to the Fellowship are made by an Examining Board, consisting of President ANGELL and Professors D'OOGHE, KELSEY, WALTER, and HUDSON. The period of incumbency is limited to two academic years, and must be spent at this University "unless at any time the examining board shall see fit to allow the second year to be spent" at some other place favorable to classical study.

The present holder of the Fellowship is Walter Dennison, A.B.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

*The Matriculation Fee and the Annual Fee must be paid in advance. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Annual Fee.—For Michigan students, *twenty-five dollars*; for all others, *thirty-five dollars*.*

Diploma Fee.—For all alike, *ten dollars*. A fee of *one dollar* is charged for the Teacher's Diploma.

For laboratory fees and other expenses, see page 36.

THE SUMMER SCHOOL.†

By action of the Board of Regents a Summer School has been established in the University, and placed under the supervision of the Faculty of the Department of Literature, Science, and the Arts. The annual session of the school begins on the second Monday after Commencement and continues for six weeks (July 8–August 16, 1895).

GENERAL REGULATIONS.

1. Before beginning work in the school, students are required to register at the office of the Steward of the University, and to pay their tuition fees to the Treasurer. Laboratory fees, where required, are also to be paid to the Treasurer.

2. Each full course of study, except when otherwise specified, comprises thirty lessons, one hour each day for five days in the week.

3. The charges for tuition for full courses of five hours a week for the session are as follows:

One Course,	\$15.00.
Two Courses taken by the same student,	25.00.
Three Courses taken by the same student, . . .	30.00.

For courses longer or shorter than five hours a week the fees are made proportionate to the time. For laboratory courses the fees vary according to the character of the work done and the economy of the student.

4. Credit towards graduation in the Department of Literature, Science, and the Arts, may be given to students regularly enrolled in the Summer School, subject to the following rules and conditions:

(a) No credit will be given save for work that is similar in kind to courses that are regularly offered in that Department.

(b) Credit will be given only for full courses of five hours a week for

* An annual fee of ten dollars is required of all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia*.

† A special Announcement of the Summer School, containing further particulars than are here given in regard to the courses of instruction, etc., is published annually. Copies of this Announcement can be had by addressing Mr. James H. Wade, Steward of the University.

the session, or multiples thereof. Exceptions to this rule may be made in the case of laboratory courses.

(c) The credit to be given for a full course of five hours a week is *two hours*,* and for multiple courses in proportion. In some laboratory courses credit of *three hours* or *five hours* may be given for proportional time and work.

(d) No student shall receive more than *six hours* of credit for work done in any one session of the Summer School.

(e) All credits must be reported by the several instructors to the Registrar of the Department immediately on the close of the annual session.

COURSES OF INSTRUCTION.

The courses of instruction have been arranged to meet the wants of several classes of students. It is supposed that a considerable proportion of the students in attendance will be teachers in high schools or academies who desire to enlarge their preparation for their special work. Students who wish to review studies preparatory to presenting themselves for examination for admission to college or university will find some courses directly adapted to meet their wants. Students regularly matriculated in the University will also find some courses suited to their needs.

In the descriptions of courses given below, the terms *two hours*, *four hours*, *six hours*, etc., indicate the amount of credit to be given for the course. Where no mention of hours is made it is to be understood that the course is not entitled to credit.

The courses offered for the summer of 1895, with the names of the instructors, are as follows:

GREEK.

No courses in Greek are offered, but instruction in elementary Greek will be provided for students who seek it.

LATIN.

1. Preparatory Latin Prose:

(a) Caesar's Gallic War. Mr. MEADER.

(b) Cicero's Orations against Catiline. Exercises in Latin Prose Composition. Assistant Professor DRAKE.

2. Roman Literature. Smith's Latin Selections. Mr. MEADER.

Course 2 will be withdrawn unless taken by at least three students.

3. Cicero's Tusculan Disputations. Assistant Professor DRAKE.

4. Historical Proseminary. Period of the early Empire. Assistant Professor DRAKE.

* For explanation of the term Hour of Credit see page 52.

FRENCH.

The Courses in French will be given by Mr. BOURLAND. The right is reserved of withdrawing any one of them, should an insufficient number of applications be received.

1. Beginner's Course. Chardenal's or Grandgent's Grammar. Rolin's Reader.
2. Modern Prose, Mérimée, Musset, Chateaubriand. *Two hours.*
3. Classic Dramas. *Two hours.*
4. Prose Composition. Grandgent's Materials, Parts I and VI. *Two hours.*

GERMAN.

The Courses in German will be given by Mr. MENSEL. Special courses in reading and in conversation will be given should there be a demand for them.

1. Beginner's Course. Elements of Grammar. Reading of easy narrative prose. Thomas's Grammar will be used.
2. German Composition. Text-books: von Jagemann's German Syntax and von Jagemann's or Buchheim's Materials for Composition. *Two hours.*
3. Advanced Course in German Grammar. Lectures and recitations. Text-books: Brandt's German Grammar, and Henry's Comparative Grammar of English and German.

ENGLISH LANGUAGE.

The courses in English Language will be given by Professor HEMPL. A course in Middle English, with special reference to Chaucer, will be given if there is sufficient demand for it.

1. Beginner's Course in Old English (Anglo-Saxon).
2. English Grammar on a historical basis. A study of the elements of English phonology, morphology, and etymology. Sweet's Primer of Historical English Grammar.

ENGLISH LITERATURE.

The Courses in English Literature will be given by Professor DEMMON. They will extend over the three weeks from July 8 to July 26. Students will be expected to do considerable reading in connection with each course. The fee will be \$7.50 for each course. Work will be arranged for those who wish to continue their reading in the library to the end of the session.

1. American Literature. Assigned readings from the principal authors, and discussions by the class.

2. Study of Shakespeare. Lectures, readings, and discussions. The class will study six plays and present written reports on suggested topics connected therewith. The plays selected will be different from those studied in the session of 1894.

ENGLISH COMPOSITION.

The courses in English Composition will be given by Assistant Professor SCOTT. The fee for each course will be \$7.50. If taken together they will entitle the student to *two hours* of credit. They will be given twice a week, once for an hour and a half and once for one hour.

1. Principles of English Composition. Lectures and reports on assigned readings.
2. Analysis of English Prose. An examination of selected specimens of prose with reference to the principles of composition which they illustrate.

PHILOSOPHY.

Of the three courses offered by Mr. REBEC, the two for which there is the largest number of applicants will be given.

1. Elementary Logic. Text-book: Jevons's Elementary Lessons in Logic, or Fowler's Inductive Logic. *Two hours.* Mr. REBEC.
2. General Psychology. Mr. REBEC.
3. Special Topics in Psychology. Readings and investigations with reports and a thesis on chosen topics. *Two hours.* Dr. BIGHAM.
4. Demonstration Course in Experimental Psychology. Laboratory work and lectures. *Two hours.* Dr. BIGHAM.
Course 4 is open to those who have had Course 2 or an equivalent.
5. Research Course along Special Lines in Psychology. *Two hours.* Dr. BIGHAM.
Course 5 is open only to those who have had Courses 2 and 4 or an equivalent.
6. Outlines of Ethics. A short thesis is required of each student. *Two hours.* Mr. REBEC.
7. General Study of the Hegelian Philosophy. *Two hours.* Dr. BIGHAM.

For Course 7 a knowledge of German is desirable, though not necessary.

MUSIC.

The courses in Music will be given by Professor STANLEY. They may be withdrawn unless taken by at least ten students.

1. Methods of public school work in music.

2. Harmony.

Course 2 will be given twice a week. Fee, \$6.00.

3. History of Music. Lectures.

Course 3 will be given three times a week. Fee, \$9.00.

MATHEMATICS.

In addition to the courses described below, courses in elementary algebra and in plane and solid geometry will be offered students who wish to review these subjects in preparation for the examinations for admission to the University, provided that at least three persons present themselves in each subject.

Courses in theoretical mechanics will be given if called for.

1. Geometry. An elementary course in plane geometry and in the methods of teaching the subject. Text-book: Chauvenet's Geometry. Mr. LYMAN.

2. Trigonometry and Algebra. Text-books: Charles Smith's Treatise on Algebra and Loney's Trigonometry. Four recitations a week in each subject. Fee, \$22.50. *Three hours.* Mr. LYMAN.

Course 2 is the equivalent of Course 1a as given in regular University work (see page 77).

3. Analytic Geometry. An elementary course based on Charles Smith's Treatise on Conic Sections. Mr. LYMAN.

4. Differential and Integral Calculus. Two Courses are offered:

4a. Elementary Course. Text-book: Osborn. Mr. LYMAN.

4b. Advanced Course. Text-book: Williamson. Assistant Professor COLE.

5. Projective Geometry. Lectures on the synthetic geometry of the range, pencil, and conic sections. Cremona's Projective Geometry is recommended for reference. *Two hours.* Assistant Professor COLE.

6. Theory of Complex Numbers. Lectures on the elements of the theory of functions. *Two hours.* Assistant Professor COLE.

PHYSICS.

1. Teacher's Course in General Physics. Lectures and recitations. Text-book: Carhart and Chute's Physics. Assistant Professor REED.

2. Laboratory work for Beginners. Elementary experiments and discussion of methods. *Two hours.* Dr. GUTHE.

In Course 2 a laboratory fee of \$3.00 will be charged.

3. Primary and Secondary Batteries. Laboratory work and recitations. *Two hours.* Dr. GUTHE.

In Course 3 a laboratory fee of \$3.00 will be charged.

GENERAL CHEMISTRY.

The laboratory expenses will probably average about \$1.75 a week in Course 3, and a less amount in Courses 2, 4, and 5, proportionately to the time spent. Courses 4, 5, and 6 will be withdrawn if not taken by as many as six persons.

1. General Inorganic Chemistry. Lectures and recitations. *Two hours.* Mr. HIGLEY.

Course 1 may be accompanied by Course 2. See note to Course 2.

2. Laboratory Work. *Four hours.* Mr. HIGLEY.

Course 2 must be accompanied by Course 1 or preceded by the equivalent of Course 1. Courses 1 and 2 taken together are the equivalent of the requirement in general chemistry in the Department of Medicine and Surgery (see page 139) and in the College of Dental Surgery (see page 184).

3. Laboratory Work. *Six hours.* Mr. HIGLEY.

Course 3 must be preceded by Course 1 or its equivalent.

4. Inorganic Preparations. Laboratory work. *Two hours.* Mr. LICHTY.

Course 4 is designed for students and teachers of experience who have had Courses 1, 2, and 3 or their equivalent. Additional work and credit can be arranged for if desired.

5. Methods of Determining Molecular Weights. *Two hours, or three hours,* as may be arranged with instructor. Mr. LICHTY.
6. Chemical Theory of Recent Years. *Two hours.* Mr. LICHTY.

ANALYTICAL CHEMISTRY AND ORGANIC CHEMISTRY.

The laboratory expenses for material used may be expected to range from one to two dollars a week, according to the character of the work done and the economy exercised.

1. Qualitative Analysis. Laboratory work and recitations. *Four hours, or six hours,* as arranged with instructor. Dr. GOMBERG.
2. Quantitative Analysis. Laboratory work and recitations. *Four hours, or six hours,* as arranged with instructor. Dr. GOMBERG.
3. Advanced Quantitative Work and Inorganic Investigations. Credit arranged with instructor. Professor E. D. CAMPBELL.
Course 3 may possibly be withdrawn.
4. Organic Chemistry, introductory. Lectures. *Two hours.* Dr. GOMBERG.
5. Organic Preparations. Laboratory work, reference reading, and recitations. *Two hours, four hours, or six hours,* as arranged with instructor. Dr. GOMBERG.

6. Ultimate Organic Analysis. Laboratory work and reading. Credit arranged with instructor. Dr. GOMBERG.

ASTRONOMY.

1. General and Descriptive Astronomy, with use of equatorial telescope. *Two hours.* Professor HALL.

ANIMAL BIOLOGY.

1. A study of typical species of animals, with reference to structure, function, development, and relationship. Laboratory work, lectures, and recitations. *Three hours.* Assistant Professor WORCESTER.

Course 1 is similar in character to Course 1 in general biology (see page 89), with such modifications as circumstances may require. Laboratory fee, \$3.00.

By communicating with the instructor arrangements for advanced work can be made by persons who have had the equivalent of the course offered.

BOTANY.

The courses in Botany will be under the supervision of Assistant Professor NEWCOMBE. A laboratory fee of three dollars will be charged in each course, though the amount of time required for laboratory work will differ in the different courses.

1. General Biology and Morphology of Plants. *Three hours.* Designed especially for teachers.
2. Vegetable Histology. *Two hours.*
3. Study of Fungi, especially those of economic importance. This course may be taken as 3a, 3b, or 3c, with credit as follows: 3a, *two hours*; 3b, *four hours*; 3c, *six hours*.

Course 3 is an advanced course and can be taken only by persons who have done considerable practical work in botany.

HISTOLOGY

The courses in Histology will be given by Assistant Professor HUBER.

1. Vertebrate Histology. Laboratory work and lectures. *Four hours.*
2. Microscopical Technique. Laboratory work. *Two hours.*

DRAWING.

The courses in Drawing will be in charge of Mr. WRENTMORE Mr. LUTEN, and Miss HUNT.

1. Freehand Drawing and Perspective in pen and ink and pencil.

2. Drawing from casts and still life in charcoal.
3. Sketching from nature and still life in water colors.
4. Mechanical Drawing, elementary. *Two hours.*
5. Isometric and other axonometric projections. *One hour.*
6. Lettering, plain and ornamental. *Two hours.*
7. Office Draughting. *Two hours.*
8. Descriptive Geometry. *Three hours.*

SURVEYING.

The courses in Surveying will be in charge of Mr. LUTEN.

1. Elements of Railroad Work. Transit and Level. *Two hours.*
2. Topography. Transit and Stadia. Plane Table. Field work and drawing. *Two hours.*
3. Phototopography. Field work with camera and mapping from photographs. *One hour.*

CIVIL ENGINEERING.

The courses in Civil Engineering will be in charge of Mr. WRENT-MORE.

1. Elements of Mechanism. *Two hours.*
2. Graphical Analysis of Roof and Bridge Trusses. *Two hours.*
3. Roadmaking. *Two hours.*

MECHANICAL DRAWING, MACHINE DESIGN, AND WOOD WORK.

The courses in these subjects will be in charge of Superintendent C. G. TAYLOR.

1. Machine Design. Laboratory work. *Two hours.*
2. Wood Work, Joiner Work, and Pattern Work. *Three hours.*

LAW.

The courses in Law are given by instructors in the Department of Law.

1. Elementary Law. Lectures and recitations. Mr. SMITH.
2. Constitutional Law. Lectures, recitations, and assigned readings. Mr. DWYER.
3. Practical Business Law and the Law of the Domestic Relations. Lectures. Mr. HUGHES.

Department of Medicine and Surgery.

A special Announcement giving further information in regard to this Department is published annually. For copies of this Announcement or for other information relating to the Department, address Dr. William A. Campbell, Secretary of the Faculty, Ann Arbor, Michigan.

THE Department of Medicine and Surgery was the first professional school established in the University. Provision was made for it in the legislative act by which the University was organized in 1837, and it was opened for students in 1850. The college year was lengthened from six to nine months in 1877. The course was lengthened to three years in 1880 and to four years in 1890.

The college year extends from the first day of October to the Thursday following the last Wednesday in June. The lectures continue till the middle of June. The examinations are then begun and concluded in time for the Commencement exercises.

REQUIREMENTS FOR ADMISSION.

Every candidate for admission to the Department of Medicine and Surgery must be at least seventeen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

Matriculates in a regular course in the Department of Literature, Science, and the Arts (page 37), graduates of literary colleges of good

standing, graduates of approved diploma schools,* and of other high schools of equal standing, are admitted without examination on presentation of proper evidence to the Examining Committee of the Faculty. For all others the requirements for admission are as follows :

1. English.—An essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing.

2. Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

Algebra.—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

Geometry.—Plane Geometry.

3. Physics.—An amount represented by Carhart and Chute's Elements of Physics, Avery's Natural Philosophy, or Gage's Introduction to Physical Science.

4. Botany.—The elements of Vegetable Anatomy and Physiology as given in Gray's Lessons.

5. Zoology.—Packard's Zoology, briefer course.

6. Physiology.—Martin's The Human Body, briefer course.

7. History.—Myers's General History, or an equivalent; and Higginson's or Johnston's History of the United States.

8. Latin.—Jones's First Latin Book, or Harkness's Latin Reader, or an equivalent amount in any other text-book. An applicant who is not prepared to pass the examination in Latin may take a condition in this subject, which condition he must remove before entering on the work of the second year.

Examinations for admission will be held at 9 A. M., Saturday and Monday, September 28 and 30, 1895. Candidates are required to present themselves at one of these dates as they are expected to be in attendance on the first day of the term, when the regular course of instruction begins. To provide for cases in which it is absolutely impossible for the candidate to be present at the time announced, supplementary examinations will be held at such times as may be determined upon by the Faculty, but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

Before admission to examination every student is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will, therefore, be necessary for the candidate to apply first to the Steward at his office in University Hall, register his name as a student in the Department of Medicine and

*The diploma schools comprise all those approved by the Faculty of the Department of Literature, Science, and the Arts. For a list of these see page 48.

Surgery, and pay his fee to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

ADMISSION TO ADVANCED STANDING.

In order to be admitted to advanced standing, a student must have completed not only the didactic courses, *but the laboratory courses also*, already taken by the class to which he seeks admission. As a rule, the only laboratory courses which students applying for advanced standing have completed, are those in chemistry. When, in the judgment of the professor in charge, such a course is equivalent to that required of our students, he may give the applicant credit for the work done, and thus avoid repetition. This, however, does not enable the student to finish the course earlier; it merely gives a few weeks of time which he may profitably spend on some advanced or optional course.

No credit can be given for lecture courses taken in schools unprepared to give the proper laboratory teaching. This applies to the clinical branches as well as to the scientific. For instance, lectures on surgery, even when accompanied by clinical demonstrations, cannot be accepted in lieu of our course in the junior year, which provides for operations by the students on animals.

COURSE OF INSTRUCTION.

The Course of Instruction covers four years of nine months each. The first two years are devoted to the more strictly scientific work which serves as a basis for the technical and clinical studies which follow. The forenoons are given to lectures and recitations, three each day; the afternoons to laboratory drill during the first two years, and to the study of methods of diagnosis and means of treatment during the second two years. Four or five hours a day are required in the laboratory and the hospital.

INSTRUCTION FOR WOMEN.

The course of instruction for women is in all respects equal to that for men. Practical Anatomy is pursued by the two sexes in separate rooms, and some of the lectures and demonstrations, which it is not desirable to present to the two sexes together, are given to them separately; but in most of the lectures, in public clinics, in the several laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

SCHEDULE OF STUDIES.

FIRST YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

<i>Subjects.</i>	<i>Time Required.</i>
Osteology and Descriptive Anatomy,	5 hours a week.
General Chemistry,	5 hours a week.
Bacteriology,	4 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

<i>Subjects.</i>	<i>Time Required.</i>
Descriptive Anatomy,	3 hours a week.
Physics,	4 hours a week.
Organic Chemistry,	5 hours a week.
Histology,	3 hours a week.

LABORATORY WORK IN FIRST YEAR.

<i>Subjects.</i>	<i>Time Required.</i>
Anatomy,	Every day for 12 weeks.
Chemistry,	Every day for 12 weeks.
Bacteriology,	Every day for 12 weeks.

SECOND YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

<i>Subjects.</i>	<i>Time Required.</i>
Anatomy,	5 hours a week.
Physiology,	5 hours a week.
Hygiene,	3 hours a week.
Embryology,	2 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

<i>Subjects.</i>	<i>Time Required.</i>
Anatomy,	5 hours a week.
Physiology,	5 hours a week.
Physiological Chemistry,	3 hours a week.
Hygiene,	2 hours a week.

LABORATORY WORK IN SECOND YEAR.

<i>Subjects.</i>	<i>Time Required.</i>
Anatomy,	Every day for 12 weeks.
Physiological Chemistry,	Every day for 12 weeks.
Histology,	Every day for 6 weeks.
Electrotherapeutics,	Every day for 6 weeks.

THIRD YEAR.**LECTURES AND RECITATIONS IN FIRST SEMESTER.**

<i>Subjects.</i>	<i>Time Required.</i>
Theory and Practice,	4 hours a week.
General Surgery,	2 hours a week.
Obstetrics,	2 hours a week.
Materia Medica and Therapeutics,	5 hours a week.
Pathological Histology,	2 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

Same as in the first semester.

LABORATORY AND DEMONSTRATION COURSES IN THIRD YEAR.

<i>Subjects.</i>	<i>Time Required.</i>
Practical Pathology, Elementary Course,	Every day for 4 weeks.
Physiology (optional),	Every day for 5 weeks.
Practical Pharmacology (optional),	Every day for 6 weeks.
Clinical Medicine,	Every day for 5 weeks.
Nervous Diseases,	Every day for 5 weeks.
Operative and Minor Surgery,	Every day for 5 weeks.
Obstetrics and Gynæcology,	Every day for 5 weeks.
Ophthalmology, Otology, and Laryngology,	Every day for 5 weeks.
Practical Pathology, Advanced Course.	Classes will be arranged according to the number of students wishing to take the course.

CLINICAL COURSES IN THIRD YEAR.

<i>Subjects.</i>	<i>Time Required.</i>
Internal Medicine,	2 hours a week.
Surgery,	2 hours a week.
Gynæcology,	2 hours a week.
Ophthalmology,	2 hours a week.
Nervous Diseases,	1 hour a week.

FOURTH YEAR.**LECTURES AND RECITATIONS IN FOURTH YEAR.**

<i>Subjects.</i>	<i>Time Required.</i>
Theory and Practice,	1 hour a week.
Special Surgery,	3 hours a week.
Obstetrics and Gynæcology,	3 hours a week.
Diseases of the Nervous System,	2 hours a week.
Dermatology and Syphilology,	2 hours a week.

Ophthalmology, Otology, and Laryngology,	2 hours a week.
Pathology,	2 hours a week.

CLINICAL COURSES IN FOURTH YEAR.

<i>Subjects.</i>	<i>Time Required.</i>
Internal Medicine,	4 hours a week.
Surgery,	2 afternoons a week.
Obstetrics and Gynæcology,	2 afternoons a week.
Dermatology and Syphilology,	2 hours a week.
Ophthalmology, Otology, and Laryngology,	2 afternoons a week.
Diseases of Nervous System,	1 hour a week.

BEDSIDE AND DISPENSARY INSTRUCTION.

Students in the fourth year are given charge of patients, required to make diagnoses, prescribe, dress wounds, and make minor operations under the direction of the professor in charge. A lying-in-ward furnishes obstetrical cases, which are attended by senior students in rotation.

EXAMINATIONS.

Examinations (written, oral, or both written and oral) are held at the close of each course or semester. Students "*conditioned*" cannot apply for another examination in the same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported "*not passed*" are required to take the course over again before applying for re-examination. Candidates for graduation, who fail in an examination, are allowed a re-examination before the entire Faculty. No student is recommended for graduation until he has completed all his required work and has passed all his examinations. Further rules concerning examinations are given in the special Announcement of the Department.

EQUIVALENT COURSES IN THE DEPARTMENT OF LITERATURE,
SCIENCE, AND THE ARTS.

All the subjects of the first two years of the preceding schedule, with the exception of electrotherapeutics, are offered in elective courses in the Department of Literature, Science, and the Arts. Students in that department who intend to study medicine after taking the bachelor's degree, may shorten their total period of residence at the University by from a year to a year and a half or two years, if they elect, as literary students, courses equivalent to those required in the first two years of the medical curriculum. The precise amount of time gained will depend

upon the number of required medical courses the student completes. Under certain conditions (page 118) literary students are allowed to be registered as students of medicine also. While this opportunity is open to all literary students, it is probable that the course leading to the degree of Bachelor of Science in Biology (page 115) will be the most attractive to those who intend to take also the degree of Doctor of Medicine. Students wishing to take advantage of the opportunity here offered for combining literary and professional work should consult each semester with a committee on courses appointed by the Medical Faculty. This committee at present consists of Professor Novy and Assistant Professor Huber.

The courses offered in the Department of Literature, Science, and the Arts, which are accepted as equivalents of those required in the Department of Medicine and Surgery, are given below. They are more fully described in the chapter on the literary department, pages 79 to 94.

FIRST YEAR.*Medical Courses.*

Anatomy and Osteology,
General Chemistry,
Organic Chemistry,
Laboratory Chemistry,
Physics,
Bacteriology,
Histology,

Literary Courses.

Human Anatomy: Courses 1, 2, 3, 6.
General Chemistry: Courses 1, 4.
Organic Chemistry: Course 28.
Analytical Chemistry: Course 3.
Physics: Course 1.
Hygiene: Courses 2, 3.
Animal Morphology: Course 6 or 7.

SECOND YEAR.*Medical Courses.*

Anatomy,
Physiology,
Hygiene,
Embryology,
Physiological Chemistry,

Literary Courses.

Human Anatomy: Courses 4, 5, 7.
Physiology: Courses 1, 2.
Hygiene: Courses 1, 1a.*
Animal Morphology: Course 9.
Physiological Chemistry: Courses 6, 7.

**COMBINED COURSE LEADING TO THE DEGREES OF BACHELOR
OF SCIENCE AND DOCTOR OF MEDICINE.**

Students who desire to earn the two degrees, Bachelor of Science in Biology and Doctor of Medicine, in six years, are advised to arrange their work in the Department of Literature, Science, and the Arts in accordance with the scheme outlined below. The courses named are

* Course 1a is given in the second semester as a continuation of Course 1. Credit, two hours. It was omitted by oversight on page 87 from the list of courses offered.

those prescribed for the degrees mentioned, with the exception of those enclosed in brackets, which are recommended as elective courses. Some additional work will also have to be taken to satisfy the requirements for the Bachelor's degree in the Literary Department.

FIRST YEAR.

First semester: French, four hours; German, four hours; Mathematics, three hours; General Biology 1, five hours.

Second semester: French or German, four hours; Mathematics, four hours; English, two hours; General Biology 2, five hours.

SECOND YEAR.

First semester: Philosophy, three hours; Physics 1, five hours; General Chemistry 1, three hours; [Animal Morphology 4, five hours].

Second semester: General Chemistry 4, four hours; Analytical Chemistry 3, five hours; [Animal Morphology 5, five hours].

THIRD YEAR.

First semester: Hygiene 1 and 2, six hours; Animal Morphology 9, five hours; Human Anatomy 1 and 2, four hours.

Second semester: Organic Chemistry 28, four hours; Hygiene 1a and 3, seven hours; Human Anatomy 3 and 6, six hours.

FOURTH YEAR.

First semester: Animal Morphology 6, five hours; Human Anatomy 4 and 7, five hours; Physiology 1, five hours.

Second semester: Physiological Chemistry 6 and 7, ten hours; Physiology 2, five hours.

FIFTH AND SIXTH YEARS.

The work of the fifth and sixth years will be the same as the work of the third and fourth years of the course in the Department of Medicine and Surgery with the addition of the course in electrotherapeutics.

REQUIREMENTS FOR GRADUATION.

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years. If admitted to advanced standing, he must have attended four full courses of medical lectures, *the last two of which must be in this Department*, and have passed the required examinations.

GRADUATE COURSES.

Graduates of this Department of the University, or of other medical schools, are admitted to any one or more of the regular courses of the curriculum on giving evidence of their ability to profit by the instruction given. Advanced courses, beyond the regular curriculum, are also arranged in several of the subjects taught. Graduate students are required to pay for each course, of six weeks duration, the sum of ten dollars in addition to the ordinary laboratory expenses of the course, which vary with the character of the work.

The nature of the work arranged for graduate students in some of the branches of instruction may be seen from the following descriptive outline:

Hygiene and Bacteriology.—(a) A course of advanced bacteriological study, such as a student who has already completed the required courses in bacteriology may elect. (b) A course arranged especially for health officers, and including the chemical and bacteriological examinations of food, water, soil, and air.

Electrotherapeutics.—A course covering the subjects of diagnosis, electrolysis, the management of continuous-current and cautery batteries, and the use of induction coils and the static machine in their therapeutic applications.

Pathology.—(a) A course in microscopical technique; this consists in preparing material for examination, cutting, staining, and mounting sections, and the use of microtome. (b) A course of instruction is given in the changes produced in the different organs of the body by disease, and in the histological structures of the various neoplasms and other abnormal conditions. (c) Special investigations are made into the pathology of particular diseases, either by direct examination of affected parts, or by experimental investigation on the lower animals. This is research work to which only those who have shown some ability in this line of work are admitted.

Physiology.—(a) A course in physiological demonstrations, designed for those who teach physiology, but have not had opportunity of learning the methods of preparing physiological experiments. (b) Those who have sufficient training in laboratory methods, are allowed to use the apparatus and facilities of the laboratory for the investigation of special problems.

Histology.—(a) A course in histological technique, including the methods of preparing, staining, and sectioning tissues. (b) A course on the microscopic anatomy of the eye and ear and the central nervous system.

Chemistry.—Graduates may select work in any of the courses provided in the several departments of the University. The courses in ana-

lytical and organic chemistry, are described on pages 83 to 86. Special studies for individual purposes may be undertaken. Opportunity for research is given. The chemical library is supplied with the extensive repositories of science required in research, and with a wide range of literature of applied chemistry. In any part of the laboratory graduates may select any work they are prepared to pursue.

Anatomy.—Graduates are offered special courses in the anatomy of the nervous system of man and other vertebrates, extended studies of the organs of special sense, and facilities for the thorough anatomical study of regions of special surgical interest.

Therapeutics.—(a) A study of the influence of certain drugs on the metabolism of tissue. (b) A study of the methods of modern pharmacological research. These are both laboratory courses and require a knowledge of physiological chemistry and of the methods of the physiological laboratory.

FACILITIES FOR INSTRUCTION.

There are ample collections of plates, photographs, models, specimens, preparations, apparatus, and instruments, for illustrating the different studies embraced in the course. Additions are made from time to time to these collections so that the members of the Faculty are able to adopt every new method of illustration, and to exhibit to the classes each year all important improvements in the way of instruments and apparatus that are employed in the practice of medicine and surgery, and to show their application.

The following paragraphs may serve to indicate the extent of some of these collections and the character of the work done in the several laboratories. For further information in regard to the University museums, laboratories, and libraries, see pages 20 to 31.

MUSEUM OF ANATOMY.

The museums of Professors FORD and SAGER, embracing several thousand specimens, the result of many years' labor in collecting and preparing materials intended to aid directly in teaching, are now the property of the university, and are used in the daily work of the class rooms. These museums contain a valuable collection of bones, illustrating healthy as well as diseased conditions, the various changes that occur from infancy to old age, and the processes of first and second dentition; dissections, general and partial, of the vascular, nervous, and muscular systems, both normal and abnormal; models of various portions of the body in wax, papier-maché, and plaster, illustrating morbid growths, skin diseases, etc.; preparations in the comparative embryology, neurology,

and craniology of the vertebrata; in human embryology, in the anatomy and pathology of the diseases of women, etc. The collection of monstrosities, both single and double, of man and of the lower animals, is one of the largest in the United States.

ANATOMICAL LABORATORY.

The anatomical laboratory is admirably adapted for its purpose; the rooms are large, well lighted, and well ventilated.

The Anatomical Law of Michigan furnishes, without embarrassment, an ample supply of material for the purpose of practical anatomy. All students who have completed the requirements in descriptive and practical anatomy, pursue a course in operative surgery upon the cadaver.

In their first year, medical students have opportunity, under competent instruction, to study comparative anatomy and physiology practically by dissecting various animals. While thus becoming familiar with structures and tissues, they also acquire dexterity in the use of instruments preparatory to work upon the human cadaver.

MUSEUM OF MATERIA MEDICA.

The museum of materia medica consists of a pretty complete collection of the crude substances used in medicine along with their principal preparations and active principles. The drugs are arranged in groups convenient for study, importance being laid not on their origin but on their action. The museum is also provided with several works of reference for the use of the students and with a number of graphic registrations of the action of drugs. It is open to students of the junior class at such hours as they arrange with the instructor.

CHEMICAL LABORATORY.

(See also page 28.)

The chemical laboratory provides thorough instruction and suitable appliances for the practical study of all branches of medical chemistry. In each of the two laboratory courses *required for graduation*, namely, qualitative chemistry (devoted to the study of chemical changes and incompatibilities), and analysis of urine (applied to clinical uses and physiological study), students are taken in sections of limited number for daily drill in the class room to direct the daily practice in the laboratory. Before beginning laboratory work the student takes a preparatory course, with daily recitations, in chemical notation, and at the close of the work in each course is held to an examination.

ELECTROTHERAPEUTICAL LABORATORY.

The laboratory of electrotherapeutics is supplied with apparatus for illustrating all the various methods for generating electric currents, and for measuring currents, voltages, and resistances.

The students are furnished materials from which they construct batteries, induction coils, cautery knives, electrodes, and other appliances, and, with these, experiments in electrophysics, electrophysiology, and electrotherapeutics are conducted.

It is the aim in this laboratory instruction to make the student practically familiar with the faults and the essential requirements of all forms of electrical apparatus made use of for therapeutical purposes.

PHYSIOLOGICAL LABORATORY.

The apartments provided for the physiological laboratory offer excellent facilities for practical work, whether of class instruction or of original investigation. A large and well-lighted room is appropriated chiefly to the use of undergraduate students, who perform under the direction of instructors most of the fundamental physiological experiments. The subjects commonly embraced in the practical course relate to the physiology of the special senses, muscular contraction, nerve, reflex action, circulation, respiration, and digestion. A smaller room is devoted to advanced work and original investigation. The laboratory has a good supply of apparatus, tools, etc., and is open daily for physiological experiment and research.

HISTOLOGICAL AND EMBRYOLOGICAL LABORATORY.

This laboratory is well supplied with microscopes, microscopical accessories, microtomes, imbedding apparatus, and other instruments used in histological and embryological work. During his term of instruction in the laboratory each student is furnished with microscopical reagents, a microscope, and a table for his own use, so that the practical work is carried out by each individual for himself. In the elementary course in histology an effort is made to teach the student the use of the microscope, the methods of teasing, the methods of mounting paraffine and celloidine sections, and the use of a number of the more commonly employed stains.

During his stay in the laboratory the student makes about one hundred and fifty preparations, and he is required to sketch them all as he makes them. These preparations are so arranged as to furnish him with specimens of typical cells and cell division, of all the elementary tissues, of the various glands and organs of the body, of the epidermis of the central and peripheral nervous system, and of the sensory end-organs and the special senses.

In the course on microscopical technique, which is open only to those who have completed the elementary work, the student is instructed in the various methods of hardening, staining, imbedding, section-cutting, and injecting, the special methods of staining and counting red and white blood cells, and the use of the microscope in forensic medicine.

An optional laboratory course in the embryology of the salamander, the chick, and mammalia is offered, which is open to students who have completed the elementary work in histology and a course in microscopical technique, and have attended lectures in embryology. There is also an optional laboratory course in the microscopic anatomy of the brain and the special senses.

PHARMACOLOGICAL LABORATORY.

The pharmacological laboratory is situated in the medical building and consists of two chief rooms, one of which is used for chemical, the other for experimental pharmacology. Each laboratory is supplied with apparatus and materials for original work in either branch of research, and any student or graduate receives every encouragement in the prosecution of such work. Among the apparatus recently introduced into this laboratory may be mentioned Runne's kymographion with endless paper, two sets of revolving drums, artificial respiration apparatus driven by an electric motor, time markers and signals (electric and clock-work), batteries and secondary coils, centrifugal and "shaker" apparatus, balances, combustion furnaces, etc.

PATHOLOGICAL LABORATORY.

The pathological laboratory is furnished with microscopes made by R. & J. Beck, the Bausch & Lomb Optical Co., and Zeiss, adapted for every requirement. There is also a special microscope with apochromatic object glass, by Zeiss, for high-power work. There is an ample supply of material for all microscopical study in pathology and every requisite for the cultivation and examination of pathogenic bacteria.

The work in this laboratory comprises an elementary and an advanced course. The elementary course is a required course, taken in the third year. It includes all ordinary practical work in connection with the study of the processes of disease as seen with the microscope. Students who have taken the elementary course and have proved themselves capable of undertaking further work are eligible for the advanced course. This advanced course may consist of an extension of the work previously done, or it may be confined to an investigation into the diseases of the lower animals. On completing the advanced course, the student is competent to undertake an investigation in the highest branch of pathology, the causation of disease, but special investigations of this description cannot be made during the regular four years' course of study. They must be carried on in a graduate course, unless the student is willing to devote more than the required four years to his studies before graduation.

Each student is supplied with a microscope and with such apparatus, reagents, and materials as he needs, with the exception of glass slides and

covers. The specimens made by him during the course are his property, and he thus obtains a typical set of slides, illustrating all the ordinary forms of disease.

Autopsies.—Post-mortem examinations of all available cases are made before the senior class, and selected students assist at each examination. Sections of the senior class are also instructed in the methods of making post-mortem examination. No stated times can be set for this instruction, but every student is expected to take part in a post-mortem examination before presenting himself for the final examination in the course in pathology.

HYGIENIC LABORATORY.

The hygienic laboratory has a large room devoted to bacteriological work, containing all of the improved apparatus employed by Koch. The course in bacteriology extends through three months and requires four hours daily in the laboratory for this time. All the known pathogenic and the most important non-pathogenic germs are studied. The microscopes used are those of Zeiss and Leitz. All animals needed for experimentation are supplied by the laboratory. There are also courses in the chemical and bacteriological examination of drinking water, and in the study of food adulterations. Besides these, advanced students who wish to do practical work in the study of ptomaines and leucomaines are accommodated.

The objects had in view in the establishment of this laboratory were as follows: (1) original research as to the causation of disease; (2) sanitary examination of food and drink; (3) instruction to students.

Besides the large bacteriological room, there are rooms fitted especially for gas analysis and water analysis, and private rooms for original research. There are also a cold chamber, a disinfecting chamber, and an animal room.

MUSEUM OF NATURAL HISTORY AND LIBRARY.

Students in medicine have access to the botanical, zoological, and geological cabinets of the University, estimated to contain 255,000 specimens. The Medical Library contains 5,774 volumes. The General Library, containing 74,355 volumes, is also open to all students. A complete catalogue, arranged both by authors and by subjects, is accessible to readers. The leading medical periodicals of this country and of Europe are taken and kept on file.

THE UNIVERSITY HOSPITAL.

The University Hospital accommodates a large number of patients, is thoroughly equipped, and is in the immediate charge of a competent

house physician and surgeon. It is under the direction of the Faculty, who attend regularly upon the patients (each upon such cases as come within his special department) and give clinical instruction in the wards to advanced students. In connection with the hospital there is a spacious clinical amphitheatre where clinics are regularly held every day during the college year, for medical, surgical, gynæcological, ophthalmological, neurological, dermatological, and venereal cases, at which time examinations are made, prescriptions given, and surgical operations performed in the presence of the class.

Students are required to take the history and keep a record of patients, and, under proper supervision, are offered an opportunity of personally examining the patients. It is the aim of the Faculty to make instruction in clinical medicine systematic and thorough, and this they are enabled to do by an abundance of interesting cases which present themselves in the clinic every year.

A lying-in ward is established in which senior students are given an opportunity to attend cases of labor, and become familiar with the duties of the lying-in room, under the immediate direction of the professor of obstetrics and his assistant.

For the treatment of diseases of the nervous system the hospital is furnished with apparatus for generating all kinds of electric currents. Attendants especially skilled in the application of electricity and massage are put in charge of such cases.

A large portion of the cases admitted to the hospital are from a distance and are of more than common interest, including many cases of chronic diseases of the lungs, the heart, and the nervous system.

The hospital is kept open for patients during the whole year, but no contagious diseases are admitted. Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than was formerly possible. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to the Superintendent of the University Hospital to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

Training School for Nurses.—In connection with the Hospital there has been established a training school for nurses under the charge of a competent and experienced matron. The term of study and service extends through two years, at the expiration of which time those who have proved themselves worthy are granted a certificate of graduation. For further information in regard to this school application may be made to the Superintendent of the Hospital.

TEXT-BOOKS AND BOOKS OF REFERENCE.

A list of text-books and books of reference recommended is given in the special Announcement of the Department. The student who begins a course of reading without an instructor, is recommended to devote the most of his time for the first year to the elementary branches, anatomy, physiology, and general and medical chemistry.

FEEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

Annual Fee.—For Michigan students, *thirty dollars*; for all others, *forty dollars*.

Diploma Fee.—For all alike, *ten dollars*.

Laboratory and Demonstration Courses.—The required laboratory and demonstration courses cost approximately as follows:—

Anatomy	\$20 00
Chemistry	15 00
Bacteriology	15 00
Physiological Chemistry	15 00
Histology	5 00
Electrotherapeutics	8 00
Pathological Histology	10 00
Operative Surgery	10 00
Demonstration Course in Medicine	10 00
“ “ “ Obstetrics	10 00
“ “ “ Nervous Diseases	10 00
“ “ “ Laryngology and Ophthalmology	10 00

A deposit of the amount indicated for each of the above is required before the work of the course is begun.

Graduate Courses.—A fee of *ten dollars* is charged to graduate students for each course taken, in addition to the ordinary laboratory expenses of the course.

The total amount of fees paid to the University during the whole four years' course, for matriculation, incidental expenses, materials used, and diploma, is for Michigan students, about \$270.00; and for others, about \$325.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses see page 35.

* The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Department of Law.

A special Announcement giving further information in regard to this Department is published annually. For copies of this Announcement or for other information relating to the Department, address the Dean of the Department of Law, Ann Arbor, Michigan.

THE Department of Law was opened in 1859. From the first it has been the constant endeavor of the Faculty to make the instruction imparted and the advantages afforded equal to any attainable elsewhere in the country. No effort will be spared to make it deserve in the future a prosperity like that it has hitherto enjoyed. A spacious building is devoted to its accommodation, containing the library, the lecture rooms, and ample debating and society rooms. In every respect the conveniences of the Department are exceptionally good. The course of instruction for the degree of Bachelor of Laws has formerly extended over a period of only two college years; but, beginning with October 1, 1895, the course will be a graded course covering three years. Persons who hold the degree of Bachelor of Laws may obtain the degree of Master of Laws after an additional year of study.

The college year extends from the first day of October to the Thursday following the last Wednesday in June.

REQUIREMENTS FOR ADMISSION.

The requirements for admission here given are those in effect for the year beginning October 1, 1895. The requirements for the year beginning October 1, 1896, will be given in the special Announcement of the Department.

If the person applying for admission intends to be a candidate for a degree at the end of his course, he must be not less than eighteen years of age, and must pass the examinations hereinafter prescribed for admission to the class which he desires to enter. Examinations will be held in the Lecture Room in the Law Building, at 2 P. M., on Saturday and Monday, September 28 and 30, 1895. The examination on the first of these days will be on the subjects required for admission to the first year's class. The examination on the second day will have reference to legal education, and is confined to candidates for advanced standing. These examinations will continue until the students are classified. Applicants for advanced standing are required to be present at both of these examinations. Candidates are required to present themselves on these days, as they are expected to be in attendance on the first day of the term, at which time the regular course of instruction will begin. To provide for cases in which it is absolutely impossible for the candidate to be present at this time, supplementary examinations will be held at such times as may be determined upon by the Faculty, but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

No prior reading in law is required of candidates for admission to the first year's class, nor is it required that the student shall spend any time in a law office before applying for admission.

Before admission to the Department every student is required to present to the Dean of the Faculty the Treasurer's receipt for payment of the matriculation fee and annual fee. It is essential, therefore, that a candidate for admission should apply first to the Steward of the University at his office in University Hall, register his name as a student in the Department of Law, and pay his fees to the Treasurer. He is then entitled to apply for admission, and, in case of rejection, the money paid preliminary to the examination will be refunded by the Treasurer.

ADMISSION TO FIRST YEAR'S CLASS.

Graduates of approved colleges, matriculates of colleges, and students who have completed an academical or high-school course and present proper certificates or diplomas, are admitted without examination.

All other candidates for a degree are required to pass examinations as follows:

1. Arithmetic and Geography.
2. Spelling, Grammar, and the Art of Composition.
3. United States History, and English History. Ransome's Short History of England, or Green's History of the English People, is recommended as affording the student a proper preparation for the examination in English History.

The examinations are conducted in writing; and from the papers submitted the Faculty judge of the applicant's knowledge of spelling, grammar, and the art of composition.

Inasmuch as many present themselves a long time after completing their school education, it may be said that the examination will not be technical. The object is not to ascertain the amount of school-book knowledge which the candidate possesses, but to ascertain the results of his previous training, and his present practical capacity and ability to appreciate the technical study of law.

ADMISSION TO ADVANCED STANDING.

Candidates for advanced standing are examined on whatever subjects they may offer themselves for examination on; the examinations not being restricted to the subjects included in the first year, but being allowed as well on the subjects embraced in the other years. The candidate must satisfy the Faculty that he has made sufficient progress in his study of the law to justify his admission to an advanced class, and he will be assigned to the class for which he is qualified.

ADMISSION OF SPECIAL STUDENTS.

As students come to the University who have been reading law for a considerable period before making application for admission to the Department of Law, but who do not wish to become candidates for a degree, it has been thought best to allow such students, in exceptional cases, to become special students, with the privilege of pursuing, under the guidance of the Faculty, such of the subjects taught in the Department as they are qualified to pursue with profit.

ASSIGNMENT OF SEATS.

Students are allowed to select seats in the lecture room in the order in which they pay their fees to the Treasurer; and each student is expected to occupy, during the session, the seat selected. No student will be assigned a seat, or be entered on the rolls of the Department, until his fees are paid.

COURSE OF INSTRUCTION.

The course of instruction is not confined to any one system. Realizing that all methods have their advantages as well as their disadvantages, it is the aim of the Faculty, instead of pursuing only a single method, to embrace the best features of all methods, believing that by this plan they can best accomplish the great object of the school, namely, the training and equipment of practical and successful lawyers.

THE LECTURE COURSE.

It is the design of the department to give instruction that shall fit students for practice in any part of the country. The course of instruction embraces the several branches of Constitutional, International, Maritime, Commercial, and Criminal Law, Medical Jurisprudence, and the Jurisprudence of the United States, and includes such instruction in Common Law and Equity Pleading, Evidence, and Practice, as will lay a substantial foundation for practice in all departments of Law.

The schedule of lectures for the year 1895-6 will be given in the special Announcement of the Department. The lectures for the year 1894-5 are as follows:

TO THE JUNIOR CLASS.

PLEADING AND PRACTICE. *Professor Griffin.*

PERSONAL PROPERTY AND TITLE THERETO BY GIFT, SALE, MORTGAGE, AND ASSIGNMENT. *Professor Griffin.*

FIXTURES AND EASEMENTS. *Professor Thompson.*

EQUITY PLEADING AND PROCEDURE. *Professor Thompson.*

BAILEMENTS AND CARRIERS. *Professor Knowlton.*

CONTRACTS. *Professor Knowlton.*

TORTS. *Professor Champlin.*

AGENCY. *Professor Mechem.*

PARTNERSHIPS. *Professor Mechem.*

THE LAW OF DOMESTIC RELATIONS. *Professor A. C. Angell.*

THE LAW OF HUSBAND AND WIFE. *Professor Kirchner.*

TO THE SENIOR CLASS.

JURISPRUDENCE OF THE UNITED STATES. *Professor Griffin.*

EVIDENCE. *Professor Griffin.*

REAL PROPERTY LAW, INCLUDING LANDLORD AND TENANT. *Professor Thompson.*

EQUITY JURISPRUDENCE. *Professor Thompson.*

CRIMINAL LAW. *Professor Knowlton.*

PUBLIC AND PRIVATE CORPORATIONS. *Professor Champlin.*

WILLS, THEIR EXECUTION AND REVOCATION. *Professor Mechem.*

THE ADMINISTRATION AND DISTRIBUTION OF ESTATES OF DECEASED PERSONS. *Professor Mechem.*

THE LAW OF DAMAGES. *Professor Mechem.*

CONSTITUTIONAL LAW. *Professor A. C. Angell.*

PRIVATE INTERNATIONAL LAW. *Professor Kirchner.*

RECITATIONS AND EXAMINATIONS.

The classes are examined daily throughout the year on the lectures delivered. In addition to this work they are divided into sections and

required to recite daily upon the lectures, after the manner adopted in the text-book instruction, thereby securing a thorough knowledge of the subjects treated during the year.

From time to time during the year the classes are subjected to oral and written examinations on the lectures delivered during the year, and their promotion to a higher class is dependent on the manner in which they pass such examinations.

The Faculty do not hesitate to drop a student from the rolls at any time during the year, when satisfied that such student is neglecting his work and not conforming to the requirements of the Department.

TEXT-BOOK INSTRUCTION.

In addition to the instruction by lectures is the instruction by text-book. The course for 1894-5 is given below. The course for 1895-6 will be given in the special Announcement of the Department.

The members of the junior class attend daily recitations in Cooley's edition of Blackstone's Commentaries (Book II), and in Anson on Contracts, under Professor KNOWLTON; in Stephen's Rules on Pleading under Professor GRIFFIN; in Lube's Equity Pleading, under Professor THOMPSON; and in Bills and Notes, under Mr. JOHNSON.

Members of the senior class attend recitations in Heard's Criminal Pleading, and those who come from Code States are expected to attend recitations on Code Pleading, under Mr. JOHNSON; and they will find the instruction thus obtained invaluable in their subsequent practice. Students from States where the reform procedure has not been introduced may or may not, at their option, attend such recitations.

Satisfactory examinations must be passed by the members of both classes in the text-books used.

Each class is divided into five sections, in order that due attention may be given to the individual student.

THE STUDY OF LEADING CASES.

As much benefit can be derived from a proper study of what are known as Leading Cases, and as it is desirable that students should be familiar with the more important of these cases, the members of the classes are constantly assigned cases by the lecturers for examination and study. In several of the lecture courses volumes of selected cases upon the subject of the lectures are used as a part of the required work.

ELOCUTION AND ORATORY.

It is important for those who study the law with the view of becoming advocates, that they should give attention to the subject of forensic eloquence, the better to equip them for the performance of their duties as

advocates. It is a mistake to suppose that excellence in speaking is simply a gift of nature, and not the result of patient and persistent labor and study.

The following courses, given by Professor TRUEBLOOD, are optional: but when a student has elected a course, he is required to complete it. Failure to do so will affect his standing at graduation.

1. Elocution. Exercises in vocal culture, breathing, position, and gesture; elements of quality and force of voice, with their application to choice passages from the orators.

2. Elocution. Exercises in vocal culture, continued; principles of action; elements of pitch and time, and emphasis, and their application to representative selections.

3. Study of Forensic Orators and Oratory. Lectures on methods of public address and sources of power of the orator; study of representative orations.

4. Oral Discussions. Designed to develop readiness of extemporization. Practical application of the principles of formal logic. Leading questions of the day debated in class. Lectures on argumentation and persuasion.

GRADUATE COURSE.

Any person who has received in due course the degree of Bachelor of Laws from any approved Law School, which maintains an undergraduate course of not less than two years of nine months each, may be admitted to the graduate course.

The following course of study is pursued by candidates for the degree of Master of Laws:

PUBLIC INTERNATIONAL LAW. Theses are required on topics assigned.

President Angell.

HISTORY OF TREATIES. *President Angell.*

HISTORY OF REAL PROPERTY LAW. Seminary work, based on Digby's History of the Law of Real Property. *Professor Thompson.*

SURETYSHIP AND MORTGAGE. *Professor Thompson.*

THE LAW OF RAILWAYS. *Professor Knowlton.*

JUDICIAL SALES. *Professor Knowlton.*

THE SCIENCE OF JURISPRUDENCE. Text-book; Holland's Science of Jurisprudence. *Professor Mechem.*

ELECTIONS AND THE APPOINTMENT AND REMOVAL OF PUBLIC OFFICERS. *Professor Mechem.*

TAXATION. *Professor Mechem.*

DAMAGES. *Professor Mechem.*

THE RAILROAD PROBLEM. *Professor Adams.*

COMPARATIVE CONSTITUTIONAL LAW. Lectures on the institutions of Germany, France, and other continental states, with a study of works on the English Constitution. *Professor Hudson.*

ADVANCED COURSE IN CONSTITUTIONAL LAW AND CONSTITUTIONAL HISTORY. *Professor McLaughlin.*

WRITS OF MANDAMUS, QUO WARRANTO, PROHIBITION, CERTIORARI, AND HABEAS CORPUS. Text-book: High's Extraordinary Legal Remedies. *Mr. Johnson.*

THE INTER-STATE COMMERCE ACT. *Professor T. M. Cooley.*

ADMIRALTY LAW. *Judge Swan.*

THE LAW OF INSURANCE. *Dr. Bigelow.*

MEDICAL JURISPRUDENCE. *Dr. Ewell.*

INJUNCTIONS AND RECEIVERS. *Dr. High.*

TOXICOLOGY IN ITS LEGAL RELATIONS. *Dr. Vaughan.*

MINING LAW. *Mr. Clayberg.*

PATENT LAW. *Mr. Lothrop.*

ROMAN LAW. *Mr. Meader.*

COPYRIGHT LAW. *Mr. Reed.*

Students recite and are examined on the subjects enumerated above, under the direction of Mr. JOHNSON, and, in addition, are required to prepare a thesis on some subject approved by the Faculty, which thesis must be submitted at least two months prior to Commencement.

The members of the undergraduate classes are not allowed to attend the lectures given to the graduate students, except that members of the senior class may attend, if they desire, the lectures on mining law, patent law, and copyright law. Graduate students are, however, allowed to attend the lectures given to undergraduates.

CONSTITUTIONAL HISTORY AND POLITICAL SCIENCE.

It seems to be conceded now that the law should be studied in a law school, and that the law school should be connected with a university, where students may avail themselves of opportunities for the study of such other branches of learning as are of allied significance.

It is believed that students in the Department of Law may derive great benefit from the instruction given on kindred subjects in the Department of Literature, Science, and the Arts (page 37). Students who first obtain permission from the Law Faculty, and also make special application to the Registrar of the Department of Literature, Science, and the Arts, are allowed to attend lectures delivered in that department, free of charge. But the Law Faculty reserve the right to require such students to give up any or all studies they may be pursuing in the other department, whenever it appears that the pursuit of these studies is attended with an unsatisfactory performance of the duties required in the Department of Law. Among the subjects regarded as particularly suitable for law students the following may be named: Political and Constitutional History of England; Constitutional History and Constitutional

Law of the United States; Comparative Constitutional Law; History of the Middle Ages; Elements of International Law; History of Treaties; The Social, Sanitary, and Economic Sciences. (Compare pages 68 to 76.)

THE PRACTICE COURT.

The Practice Court is under the direction of Professor BOGLE.

It has been an objection frequently urged against the completeness of the training given in law schools that the student acquired no knowledge of actual practice. This objection has been entirely removed by the introduction of the Practice Court recently established in this Department. The Practice Court is a part of the Department and is presided over by members of the Faculty, who cooperate in conducting it. Its work is divided into three parts, that of the law term, that of the jury term, and that of appellate jurisdiction. The court is provided with a full corps of officers including the member of the Faculty who may sit from time to time as presiding judge, the full bench of judges sitting as a Supreme Court, a clerk, sheriff, and the necessary deputies. Ample and commodious rooms have been provided for the use of the court, including a large court room fitted up with all of the furniture and fittings necessary for the trial of jury cases, jury rooms, and a clerk's office. The latter is provided with all the books and records used in actual practice and a full supply of the blanks in common use in the several States.

The purpose of the court is to afford to the student practical instruction in pleading and practice both at law and in equity, under the common law system and the "code" or "reformed" procedure, and actual experience in the commencement and trial of cases through all of their stages. In commencing the actions, the students assigned to the case are permitted to select the State in which the action shall be supposed to be brought, thus enabling the student to acquire the practice as prevailing in his own State. All questions of practice, pleading, and procedure are governed by the law of the State in which the action is so laid, but questions of substantive law are determined according to the weight of authority.

Two classes of cases are presented:

First. Cases arising upon given statements of fact, prepared and assigned by the Faculty, upon which process is to be issued, pleadings framed, and the cause conducted to an issue, when it is argued and disposed of as a question of law upon the facts admitted. This class of cases affords the student practical experience in the commencement of suits, and the preparation of pleadings and the argument of the questions of law arising upon the facts. The practice and pleadings are under the common law or the code procedure as the students may elect. The questions arising upon the pleading and practice, and the issue of law arising

upon the pleadings, are argued and disposed of at a regular session of the court presided over by that member of the Faculty who has charge of the instruction upon the subjects involved. When the issues so arising have been satisfactorily disposed of the student is given credit for the first course.

Second. Actual controversies are arranged and assigned for trial as issues of fact. The course will include the entire conduct of an actual case from its beginning to a final judgment in the Supreme Court. This involves the issue of proper process, the preparation and filing of appropriate pleadings, the subpoenaing of the witnesses, the impanelling of a jury, the examination and cross-examination of witnesses, the arguments to the court and jury, and all the other incidents of a contested trial.

For the purposes of this work the class is divided into sections, and the work of attorneys, witnesses, jurors and the like is performed by the students. A member of the Faculty presides at these trials, which are conducted with all the dignity and decorum of actual practice. Upon the satisfactory completion of the course, credit is given for it.

Every member of the senior class who is a candidate for a degree will be expected to take part in both courses, and to perform all the incidental duties which may be required of him. Satisfactory completion of both courses will be a condition precedent to a degree.

CLUB COURTS.

Club Courts are organizations among the students, arranged and conducted by themselves, with such assistance from the members of the Faculty as may be desired. Records are prepared and causes tried, as in actual practice. These courts are found alike interesting and useful to those who participate in them. The Club Courts are open to members of all the classes, and students are strongly recommended to connect themselves with some one of these organizations. There are also two flourishing literary societies established and conducted by the students of law for the purposes of literary culture.

REQUIREMENTS FOR GRADUATION.

BACHELOR OF LAWS.

The degree of Bachelor of Laws is conferred on such students as pursue the full prescribed course of study, and pass an approved oral and written examination. It is also conferred upon those who, having been admitted to advanced standing as members of the senior class, also pursue one year's course in this Department and pass a like examination.

Each candidate for a degree is required to prepare and deposit with *the Faculty*, before the commencement of the second semester of his

senior year, a dissertation, not less than forty folios in length, upon some legal topic approved by the Faculty. The dissertation must be satisfactory in matter, form, and style; and the student presenting it will be examined upon it. It must be printed, on a typewriter or otherwise, and a copy left with the Department. Special rates can be obtained for doing this work, and two or three dollars will cover the expense of printing and binding. In special cases the Faculty will not insist on this requisition, if it should appear to be a burden to a needy student.

MASTER OF LAWS.

The degree of Master of Laws is conferred on any graduate of this Department, who pursues the study of Law in this University for one year after graduation, and who completes to the satisfaction of the Law Faculty such a course of study as may be required; and the privilege thus extended to graduates of this Department is also extended to the graduates of other law schools who, under the rules of the Department, are entitled to admission to the graduate course.

CERTIFICATES OF ATTENDANCE.

When a person is connected with the school for a period not entitling him to graduate, he may, on application to the Dean of the Faculty, receive an official certificate of attendance, which states the time of his attendance and the degree of his attainment.

MASTER'S DEGREE IN ARTS, PHILOSOPHY, SCIENCE, OR LETTERS.

A graduate of the Department of Literature, Science, and the Arts, who is a candidate for a degree in the Department of Law, may, by permission of the Faculties of the two departments, become at the same time a candidate for a Master's degree in Arts, Philosophy, Science, or Letters (compare page 120). The privilege thus extended to graduates of this University is also extended to graduates of other colleges who satisfy the Faculty of the Department of Literature, Science, and the Arts, that the courses of study for which they obtained their first degree are equivalent to the courses of study required for the corresponding degree at this University.

Useful and desirable opportunities are thus afforded to college graduates who wish to study law and at the same time to supplement their professional studies with a broader knowledge of other branches that will be helpful to them in their professional work.

It is understood, however, that, if the work in this Department is not satisfactory, the Law Faculty will require students of law to discontinue their studies for the Master's degree.

THE LAW LIBRARY.

The Law Library contains 11,465 volumes, and includes the reports of every State in the Union, the reports of the Federal courts, and a very excellent collection of the English, Irish, and Canadian reports. It is kept supplied with new reports as they are issued, and in this way is made as good a working library for students as could be desired. In addition to the reports the library contains an extensive collection of treatises on American and English Law, and copies of the statutes of the several States and of the United States.

The library is open for consultation by students from 8 A. M. to 12 M., from 1:30 to 5:30 P. M., and from 7 to 9 P. M., during the academic year, except on Saturday afternoons and evenings. Students are not permitted to take the books from the library building, but during the hours named are allowed free access to them.

The library was enriched some years ago by the gift of the valuable law library of the Honorable Richard Fletcher, formerly one of the Justices of the Supreme Court of Massachusetts.

The late Honorable C. H. Buhl, of Detroit, by his will bequeathed the sum of ten thousand dollars for the use of the Law Library. This gift will add materially to the value and efficiency of the large collection of reports and text-books presented to the library by Mr. Buhl a few years ago, and known as the Buhl Law Library.

The Journal of Jurisprudence (Edinburgh), the Law Quarterly Review (London), the American Law Review, the American Law Register, the Criminal Law Magazine, the Albany Law Journal, the Central Law Journal, the Judicial Review, the Green Bag, the Michigan Law Journal, and the Federal Reporter, are regularly taken and kept on file.

Students of the Department of Law are also allowed the use of the General Library of the University, which contains 74,355 volumes and 15,242 unbound pamphlets (see page 20).

TEXT-BOOKS AND BOOKS OF REFERENCE.

Text-books and books of reference are very numerous, and students will find the professors ready to lend them aid in making proper selections. While several copies of each of the leading text-books will be found in the library, it is exceedingly desirable that students should supply themselves with such as they may need at their rooms. They will find that it will greatly facilitate their studies to have at hand at all times such of the leading text-books as treat of the more important branches of law. It is also advisable for them, when able to do so, to provide themselves with a copy of the statutes of their State. By so doing no loss will be

incurred, as the books will be found essential in subsequent practice. But the only books students are required to provide themselves with are those already named as being used for purposes of text-book instruction. A list of books of reference that may be used to advantage is given in the special Announcement of the Department.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

Annual Fee.—For Michigan students, *thirty dollars*; for all others, *forty dollars*.

Diploma Fee.—For all alike, *ten dollars*.

For additional information in regard to expenses see page 35.

* The Matriculation Fee and the Annual Fee must be paid in advance, and no student is allowed to select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

School of Pharmacy.

A special Announcement giving further information in regard to this School, and containing a register of residences and occupations of the alumni, revised each year so as to constitute a full professional directory, is published annually. For copies of this Announcement, or for other information relating to the School, address Professor A. B. Stevens, Secretary of the Faculty, Ann Arbor, Michigan.

THE School of Pharmacy gives training for all branches of pharmacy and for various chemical pursuits of the present time. It makes a well-grounded preparation for service as a manufacturing chemist or as an analyst. The graduate is assured a thorough qualification for the prescription table, and for the most responsible positions in pharmacy. He is fitted to act as the chemist of the medical profession. In respect to the discipline of both the intellectual and the executive powers, the work of the School offers decided advantages, in the steady requirement of severe studies, and of exact operations, on the part of each student.

The school year extends from the first day of October to the Thursday following the last Wednesday in June. Students of the first year are released the second Friday before Commencement. For special purposes admission may be granted at the beginning of the second semester, February 17, 1896. For the full regular work admission cannot be granted at any other time than at the opening of the first or the second semester, as students are instructed in classes in

progressive order. For investigations, students can be received at any time when there is room in the laboratories.

REQUIREMENTS FOR ADMISSION.

All applicants for admission must be at least eighteen years of age.

No practical training in a drug store is required before entering the School, but a year, at least, of such training would be of service. The required work in the School leaves the student no time for any engagement in a drug store during the college year.

Applicants who bring diplomas of graduation from standard high schools, or certificates of good standing in institutions of collegiate grade, are admitted without examination.

Applicants who bring evidence of having been engaged in the practice of pharmacy for at least two years are admitted on examination in the following branches:

1. **English.**—Each candidate is examined in the writing of English, especially in respect to orthography, punctuation, the use of capitals, grammatical construction, and rhetorical fitness.

2. **Mathematics.**—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures. *Algebra.*—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

3. **Latin.**—Jones's First Latin Book, or an equivalent amount in any other text-book. Instead of Latin, German to the extent of a full year's study is accepted. Those who have a speaking and reading acquaintance with German are held to an examination in the grammar.

Persons over nineteen years of age who bring evidence of having been engaged in the practice of pharmacy, in some capacity, for at least two years, are admitted (for a part or the whole of the course) upon passing the examination in English; but they are not eligible for graduation until they pass the other examinations described in the preceding paragraphs.

Other applicants are examined in the following branches:

1. **English.**—The same as given above.

2. **Mathematics.**—*Arithmetic.*—The same as given above. *Algebra.*—The same as given above. *Geometry.*—The Elements of Plane Geometry as given in Olney's New Elementary Geometry, or an equivalent in other authors.

3. **Latin or German.**—The applicant may offer (1) three years of preparation in Latin; or (2) two years in Latin and one year in German;

or (3) one year in Latin and two years in German. Those who offer three years in Latin are examined in the *Grammar*—a thorough preparation in the elements; in *Prose Composition*—Jones's Exercises in Latin Prose Composition, or an equivalent in some other text-book; and in *Reading*—four books of Caesar's Commentaries and six select Orations of Cicero, or an equivalent amount in some other text-book. Those who offer two years of Latin are examined as above, except in the Orations of Cicero. Those who offer one year of Latin are examined in an amount equivalent to Jones's First Latin Book. Those who offer one year of German should have had daily recitations on the Grammar during that time, accompanied by weekly exercises in writing, and the reading of seventy-five pages of some German reader. Those who offer two years of German should have devoted one year to the reading of some complete work of literary art.

4. **Physics.**—Carhart and Chute's Elements of Physics, or an equivalent.

5. **Botany.**—Practical exercises in the study of common plants, so conducted as to secure a familiar acquaintance with the essential facts of vegetable morphology, physiology, and relationship. See page 40 for further information as to the extent of this requirement.

Applicants whose preparatory course of study has not conformed precisely to the requirements above enumerated are allowed to offer, in place of a portion of these requirements, an equivalent amount in similar branches of study; and if they show, by examination, or by other evidence, that the work in these branches has been sufficient in amount, such branches are accepted as a substitute for those omitted.

TIMES OF EXAMINATION.

An examination for admission will be held on Friday and Saturday, June 14 and 15, 1895, and another on Saturday and Monday, September 28 and 30. The examination will begin in each case at 9 A. M. on the first of the two days mentioned. Candidates may take their examination at either of these times, as they prefer.

COURSE OF INSTRUCTION.

STUDIES OF THE FIRST YEAR.

1. **Pharmacy.**—History of pharmacopœias; metrology and chemical problems; operative pharmacy and its physical principles; the galenical preparations; official standards and purity; heat and its uses.

2. **Pharmacopœial Preparations.**—The minor operations of pharmacy; production of the galenicals, solid and fluid extracts, and scale preparations; chemicals, distillations, and organic syntheses; *extemporaneous pharmacy*.

3. General Chemistry.—Lectures with experimental illustrations, and recitations.

4. Physics.—Lectures with experimental illustrations, and recitations.

5. Pharmacognosy.—The recognition of chemicals, crude drugs, and preparations, all in the hands of the student.

6. Qualitative Chemical Analysis.—Preparatory work on chemical notation, solubilities, formation of compounds, and chemical equations. A series of analyses, and the study of oxidation and reduction with notation by negative and positive bonds.

7. Botany and Microscopy.—Systems of plants and plant structure, with drawings from the microscope by the student; the identification of powders and detection of adulterations.

STUDIES OF THE SECOND YEAR.

8. Materia Medica.—Medicines, their classification, history, physiological effect, and doses. Prescription writing, language, and latinity; prescription reading from actual files of the pharmacy.

9. Practical Pharmacognosy.—Recognition of crude drugs, chemicals, and preparations, in the hands of the student.

10. Crystallography.—Systematic crystallography applied to the recognition of chemicals.

11. Organic Chemistry.—The systematic chemistry of the carbon compounds, with experimental illustrations.

12. Quantitative Chemical Analysis.—Specific gravity; volumetric determinations; gravimetric separations.

13. Organic Analysis.—Tests of identity; methods of separation; analysis of "secret medicines;" drug assays; valuation of foods; toxicology and analyses for evidences of poisoning.

14. Pharmacy.—Of inorganic and organic materials, in respect to commercial sources, manufactures, uses, tests, and standards of strength and purity.

15. Analysis of Urine (Elective).—Normal and abnormal, by chemical, microscopical, and volumetric methods. Physiological and pathological indications.

SCHEDULE OF HOURS.

FIRST YEAR.

FIRST SEMESTER.

8 to 9 Daily.	Course 6. Recitations and lectures.
9 to 10 Daily.	Course 3. Lectures.
10 to 11 Tuesday, Thursday.	Course 5. Recitations.
10 to 11 Wednesday, Friday.	Course 1. Lectures.
1 to 5 Daily.	Course 6. Laboratory.

SECOND SEMESTER.

8 to 9 Daily.	Course 1. Lectures.
9 to 10 Tuesday, Wednesday.	Course 7. Lectures.
10 to 11 Monday, Friday.	Course 5. Recitations.
10 to 11 Monday, Tuesday, Wednesday.	Course 4. Lectures.
10 to 12 Monday, Tuesday, Wed- nesday, Thursday.	Course 7. Laboratory.
1 to 6 Daily.	Course 2. Laboratory.

SECOND YEAR.

FIRST SEMESTER.

9 to 10 Monday, Tuesday, Thursday.	Course 14. Lectures.
10 to 11 Daily.	Course 11. Lectures.
11 to 12 Tuesday, Thursday.	Course 12. Lectures.
1 to 5 Daily.	Course 12. Laboratory.
5 to 6 Wednesday, Thurs- day, Friday.	Course 10. Lectures and Practice.

SECOND SEMESTER.

8 to 10 Daily.	Thesis. Library.
10 to 11 Tuesday, Thursday.	Course 9. Recitations.
10 to 11 Wednesday, Friday.	Course 13. Lectures.
11 to 12 Monday, Wednesday, Friday.	Course 8. Recitations.
10 to 11 } 2 to 4 } Monday, Friday.	Course 14. Lectures and Practice.
1 to 6 Daily.	Course 13. } Thesis. } Laboratory.

SELECTED STUDIES.

Students are received for special lines of technical training, with liberty to take such branches as shall be found profitable to them. All branches of analytical chemistry are open to such as are prepared to take them (see courses described on pages 83 to 86).

EXAMINATIONS.

In each of the courses of instruction enumerated (1 to 15) an examination is held at the time the work is completed by the class. The result is reported to the Faculty, and each student enrolled in the class is re-

corded as Passed, Conditionally Passed, Provisionally Passed, Not Passed, or Absent. The record is not based wholly upon the examination, but upon (1) standing in recitations through the course, (2) diligence and success in the laboratory work, and (3) standing in examinations. If "Passed," the student receives credit for the completion of the study reported upon. If "Conditionally Passed," he must make up the condition imposed. A record of "Not Passed" requires the student to go over the regular exercises of the study again. A student "Provisionally Passed" is transferred from the immediate charge of the instructor to that of the Faculty, who withhold credit until better scholarship is attained in other studies. A record of Provisionally Passed may be changed by the Faculty to a record of Passed, Conditionally Passed, or Not Passed, whenever such change shall be justified by the scholarship of the student in his studies in the school. Whenever the Faculty is satisfied that a student does not fulfil the purpose of his studies, he is informed, and his parents or guardians are advised that he should leave the school. If the advice be not regarded, it becomes the duty of the Faculty to take mandatory action.

REQUIREMENTS FOR GRADUATION.

The degree of Pharmaceutical Chemist is conferred upon students who have completed the courses of required study, have obtained credit for examinations in these courses in the manner above stated, and have presented a satisfactory thesis.

The thesis must embody the results of research by the student under the direction of the Faculty. The subject is to be selected as early as the first of March, an outline of the proposed investigation is to be presented with references to the literature in the first week of April, and the completed report, with citations of the authorities in full, is to be ready by the middle of June. For most subjects the experimental investigation and the literary research make equally heavy demands upon the industry of the student.

Experience in the business of pharmacy is not made a requirement for a degree. A year of pharmaceutical experience after college is worth several years of the same before college. But until experience be obtained, the graduate in pharmacy is not fully ready for responsible service in commercial practice.

GRADUATE STUDIES AND A HIGHER DEGREE.

Extended facilities for advanced studies under instruction are given to graduates who take an additional year in the school. These facilities are adapted to preparation for service in manufacturing chemistry and phar-

macy, or in any branch of analytical chemistry. The student elects such laboratory courses and other studies as will be most helpful to him in responsibilities for which he desires to be qualified. Additional study in the Department of Literature, Science, and the Arts may be elected, if the Faculty find such elective work advisory. (See page 83 for the courses in analytical and organic chemistry given in that department). The following are among the available courses open to graduates:

1 Quantitative Analysis.—Advanced quantitative work in any direction. Iron and steel analysis, valuation of fertilizers, mineral waters, brines, etc.

2. Organic Analysis.—Proximate analysis, detection of adulterations, assay of drugs, valuation of foods, sanitary chemistry—laboratory work and reading in the library. Ultimate organic analysis and preparations—an organized course.

3. Purification of Chemicals.—An organized course of laboratory work, furnishing pure chemicals for use.

4. Industrial Chemistry.—Training for manufacturing and for commercial analysis.

5. Experimental Researches.—In manufacturing invention; in analytical methods; in pure science. Bibliography of pharmaceutical chemistry.

DEGREE OF MASTER OF PHARMACY.

The degree of Master of Pharmacy is offered to resident graduates of this School upon the following requirements; viz., the accomplishment of original research, of an extent representing the average work for a full college year, and of sufficient ability and faithfulness, and a full record of the work, with citation of authorities, in form for publication. Applications are accepted by the Faculty from those who have already shown that they are adapted to engage successfully in investigations.

TEXT-BOOKS AND BOOKS OF REFERENCE.

TEXT-BOOKS.

First Year.—In General Chemistry, Freer. In Physics, Carhart and Chute. In Qualitative Analysis, Prescott and Johnson. In Pharmacy, the U. S. Pharmacopœia, Remington's Practice, and the U. S. or National Dispensatory. In Pharmacognosy, Flückiger's Principles of Pharmacognosy and Maisch's Organic Materia Medica.

Second Year.—In Materia Medica, White-Wilcox. In Quantitative Analysis, Cheever's Select Methods. In Organic Chemistry, Bernthsen. In Organic Analysis, Prescott.

Students who study in the same room may unite in the use of the dispensatory, and the other large works.

THE LIBRARY AND BOOKS OF REFERENCE.

Works of reference are provided in the General Library of the University, which embraces the library of the School of Pharmacy. All the important repositories of chemistry and pharmacy, including the principal periodicals in complete sets, and the latest works of reference, are accessible to the student, and are in use for original research. Several hundred works of reference are provided for the use of students in the Chemical Building and the several laboratories.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

Annual Fee.—For Michigan students, *thirty dollars*; for all others, *forty dollars*.

Diploma Fee.—For all alike, *ten dollars*.

Laboratory Expenses.—These vary with the prudence and economy of the student.

For additional information in regard to expenses see page 35.

* The Matriculation Fee and the Annual Fee must be paid in advance. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Homœopathic Medical College.

A special Announcement giving further information in regard to this College is published annually. For copies of this Announcement or for other information relating to the College, address Dr. Charles S. Mack, Secretary of the Faculty, Ann Arbor, Michigan.

THE Homœopathic Medical College was established as a Department of the University in 1875. The friends of Homœopathy everywhere will be gratified to know that since the establishment of the College, wise and liberal provisions have been made by successive legislatures for its maintenance and success. The recent appropriations made for hospital purposes place the College in a most encouraging and satisfactory condition. The continuous progress in the past promises to remain uninterrupted in the future. The College has commodious buildings on the University campus. The new hospital is only a few blocks distant.

The college year extends from the first day of October to the Thursday following the last Wednesday in June, and the full course covers four college years.

REQUIREMENTS FOR ADMISSION.

Every candidate for admission to the Homœopathic Medical College must be seventeen years of age, and must present to the Faculty satisfactory evidence of a good moral character.

Women are admitted, as to all other departments of the University, on the same conditions as men.

Matriculates in a regular course in the Department of Literature,

Science, and the Arts (page 37), graduates of literary colleges of good standing, graduates of approved diploma schools* and of other high schools of equal standing, are admitted without examination on presentation of proper evidence to the Secretary of the Faculty. For all others the requirements for admission are as follows:

1. **English.**—An essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing.

2. **Mathematics.**—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

Algebra.—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

Geometry.—Plane Geometry.

3. **Physics.**—An amount represented by Carhart and Chute's Elements of Physics, Avery's Natural Philosophy, or Gage's Introduction to Physical Science.

4. **Botany.**—The elements of Vegetable Anatomy and Physiology as given in Spalding's Introduction to Botany.

5. **Zoology.**—Packard's Zoology, briefer course.

6. **Physiology.**—Martin's The Human Body, briefer course.

7. **History.**—Myers's General History, or an equivalent; and Higginson's or Johnston's History of the United States.

8. **Latin.**—Jones's First Latin Book, or Harkness's Latin Reader, or an equivalent amount in any other text-book. An applicant who is not prepared to pass the examination in Latin, may take a condition in this subject, which condition he must remove before entering on the work of the second year.

Examinations for admission will be held at 9 A. M., Saturday and Monday, September 28 and 30, 1895. Candidates are required to present themselves at one of these dates, as they are expected to be in attendance on the first day of the term, when the regular course of instruction begins. To provide for cases in which it is absolutely impossible for the candidate to be present at the time announced, supplementary examinations will be held at such time as may be determined upon by the Faculty; but no excuse, except of an urgent character, will be accepted for failure to appear at the first examination.

Before admission to examination, every student is required to present to the Secretary of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will, therefore, be necessary for the candidate to apply first to the Steward at his office in University

* The diploma schools comprise all those approved by the Faculty of the Department of Literature, Science, and the Arts. For a list of these, see page 48.

Hall, register his name as a student in the Homœopathic Medical College, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

ADMISSION TO ADVANCED STANDING.

Persons who have studied medicine elsewhere for one year may be admitted to advanced standing after having passed a satisfactory examination on all the studies which have already been pursued by the class to which they seek admission.

Students in the Department of Literature, Science, and the Arts of this University, who intend to study medicine, can gain an advanced standing by taking in that department courses practically identical with some of those prescribed for graduation in this college. Compare page 118.)

COURSE OF INSTRUCTION.

Surgery.—A complete course of lectures on minor surgery and bandaging is given to students of the first year.

A complete course of lectures on operative surgery, fractures, and dislocations, and on the principles of surgery, is given to students of the third and fourth years.

Candidates for graduation are required to demonstrate their knowledge of operative surgery by operations on the cadaver, a requisite number being provided by the authorities without expense to the class.

Under the direction of the assistant to the chair of surgery, students are allowed to make the necessary preparations for operations, and to assist, when assistance is required. Advanced students, under the immediate supervision of the surgeon in charge, are also allowed to treat patients that have been operated upon.

Materia Medica —Throughout the college year three lectures a week are given upon materia medica and therapeutics. It is the purpose in this course to present drugs *fully*, and the therapeutic uses of them. Most particular attention is given to the science of materia medica *pura* and to the homœopathic use of medicine. The students prove one or more drugs upon themselves under supervision of the professor of materia medica, who afterwards discusses before the class the records of these provings.

As each student attends these lectures (three a week) throughout his college course, he is afforded an opportunity of becoming really proficient in the science of materia medica and in the principles underlying the art of therapeutics. The different classes are quizzed at least once a week, upon the lectures heard during the preceding week.

Obstetrics, Gynæcology, and Pædology.—The course of study in these several branches is so arranged that separate lectures are given to the several classes in a graded course. Students of the first year are drilled in the fundamental branches of gynæcology, and are taught the use of instruments, the various methods of making gynæcological examinations, etc. With the third year the student enters upon both didactic and clinical work. In the last year of the course lectures are delivered upon special subjects and the senior students are required to make physical and local examinations in the sub-clinics of this department, thus familiarizing themselves with the various methods of practicing touch, palpation, obstetric auscultation, etc., and utilizing to the best possible advantage the many patients availing themselves of this special department of the clinic.

Ophthalmology, Otology, and Laryngology.—Regular lectures on these important specialties, amply illustrated from the abundance of clinical material at the disposal of the Faculty, are given in the third and fourth years. The eye-and-ear, nose, and throat clinic forms one of the most interesting features of the clinical work, and affords the class every facility for a thorough practical study of all the diseases of these organs, that come under the observation of the physician. Students have cases assigned them for dressing and treatment, from time to time, and thus acquire practical skill and knowledge in diagnosis, and in the use of the various instruments.

Theory and Practice of Medicine.—The course in Theory and Practice comprises a thorough discussion of the various subjects belonging to this chair. In addition to a full consideration of those diseases which make up the greater part of the physician's general practice, it includes special courses devoted to diseases of the skin, diseases of the nervous system, and to instruction in physical diagnosis. Careful attention is also given to the study of the pathology of the various diseases considered. No pains are spared to make the student thoroughly familiar with homœopathic practice, as well as with all the latest advances in medicine.

Special attention is given to practical therapeutics in the didactic work, which is fully illustrated and demonstrated at the clinic; where also, special emphasis is laid upon the relations existing between the homœopathic similar and the actual pathological conditions. The clinical material is further utilized for giving special instruction in physical diagnosis and in the practical application of the various diagnostic instruments. In the fourth year students have cases in the hospital assigned to their care, from time to time, and they thus have abundant opportunity for gaining bedside experience in the diagnosis and treatment of disease.

Institutes of Homœopathy.—That each student may come to understand homœopathy intelligently, the professor of *materia medica* at

the beginning of his course devotes several lectures exclusively to the Institutes of Homœopathy; and thereafter throughout the course keeps prominent the facts (as presented by various authorities) upon which an intelligent belief in homœopathy may rest.

Mental Diseases.—A special course of lectures on mental diseases is given by Dr. Oscar R. Long, Superintendent of the Michigan Asylum for Insane Criminals.

INSTRUCTION FOR WOMEN.

The course of instruction for women is in all respects equal to that for men. Practical Anatomy is pursued by the two sexes in separate rooms, and some of the lectures and demonstrations, which it is not desirable to present to the two sexes together, are given to them separately; but in most of the lectures, in public clinics, in the laboratories, and in various class exercises, it is found that both sexes may attend with propriety at the same time.

SCHEDULE OF STUDIES.

The following schedule shows the arrangement of studies for the course of four years. Three or more lectures are given each forenoon; the afternoons are devoted to laboratory and clinical work. The subjects taught by the Homœopathic Faculty are marked with a (*).

In all branches of study required for graduation, but not specially provided for in the Homœopathic Faculty, the students receive instruction from the respective professors in the Department of Medicine and Surgery, and, in those branches, they are subject to the same rules, regulations, and examinations, as the students of that department. For further information in regard to this work see pages 139 to 149.

FIRST YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

<i>Subjects.</i>	<i>Time required.</i>
*Materia Medica,†	3 hours a week.
Osteology and Descriptive Anatomy,	5 hours a week.
General Chemistry,	5 hours a week.
Bacteriology,	4 hours a week.

† Laboratory work is apt to interfere with attendance at the lectures on Materia Medica a part of the first and second years; but it is important that students should attend the lectures upon this subject as much as possible during these years. In the work of the third and fourth years they will find it of advantage to have earlier made some acquaintance with the subject.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

<i>Subjects.</i>	<i>Time required.</i>
*Materia Medica,	3 hours a week.
*Minor Surgery,	1 hour a week.
Descriptive Anatomy,	3 hours a week.
Physics,	4 hours a week.
Organic Chemistry,	5 hours a week.
Histology,	3 hours a week.

LABORATORY WORK IN FIRST YEAR.

<i>Subjects.</i>	<i>Time required.</i>
Anatomy,	Every day for 12 weeks.
Chemistry,	Every day for 12 weeks.
Bacteriology,	Every day for 12 weeks.

SECOND YEAR.

LECTURES AND RECITATIONS IN FIRST SEMESTER.

<i>Subjects.</i>	<i>Time required.</i>
*Materia Medica,	3 hours a week.
Anatomy,	5 hours a week.
Physiology,	5 hours a week.
Hygiene,	3 hours a week.
Embryology,	2 hours a week.

LECTURES AND RECITATIONS IN SECOND SEMESTER.

<i>Subjects.</i>	<i>Time required.</i>
*Materia Medica,	3 hours a week.
Anatomy,	5 hours a week.
Physiology,	5 hours a week.
Physiological Chemistry,	3 hours a week.
Hygiene,	2 hours a week.

LABORATORY WORK IN SECOND YEAR.

<i>Subjects.</i>	<i>Time required.</i>
Anatomy,	Every day for 12 weeks.
Physiological Chemistry,	Every day for 12 weeks.
Histology,	Every day for 6 weeks.
Electrotherapeutics,	Every day for 6 weeks.

THIRD YEAR.

LECTURES AND RECITATIONS IN FIRST AND SECOND SEMESTERS.

<i>Subjects.</i>	<i>Time required.</i>
*Theory and Practice,	2 hours a week.

*Surgery,	3 hours a week.
*Obstetrics and Gynæcology,	3 hours a week.
*Materia Medica and Therapeutics,	5 hours a week.
Pathological Histology,	2 hours a week.

LABORATORY WORK IN THIRD YEAR.

<i>Subjects.</i>	<i>Time required.</i>
Practical Pathology, Elementary Course,	Every day for 4 weeks.
Physiology (optional),	Every day for 5 weeks.
Practical Pathology, Advanced Course.	Classes will be arranged according to the number of students wishing to take the course.

CLINICAL COURSES IN THIRD YEAR.

<i>Subjects.</i>	<i>Time required.</i>
*General Medicine,	2 hours a week.
*Surgery,	2 hours a week.
*Gynæcology,	2 hours a week.
*Ophthalmology, Otology, and Laryngology,	2 hours a week.

FOURTH YEAR.

LECTURES AND RECITATIONS IN FOURTH YEAR.

<i>Subjects.</i>	<i>Time required.</i>
*Theory and Practice,	4 hours a week.
*Surgery,	4 hours a week.
*Obstetrics and Gynæcology,	4 hours a week.
*Materia Medica and Therapeutics,	4 hours a week.
*Ophthalmology, Otology, and Laryngology,	2 or 3 hours a week.
Pathology,	2 hours a week.

CLINICAL COURSES IN FOURTH YEAR.

<i>Subjects.</i>	<i>Time required.</i>
*General Medicine,	2 hours a week.
*Surgery,	2 hours a week.
*Gynæcology,	2 hours a week.
*Ophthalmology, Otology, and Laryngology,	2 hours a week.

EXAMINATIONS.

At the end of each semester, examinations (written, oral, or both written and oral) are held on all subjects taught during the semester, and each student's grade is entered upon the records of the Faculty. Students "*conditioned*" cannot apply for another examination in the

same subject until the close of the next course or semester, except that a student conditioned at the close of the college year may ask for another examination in the first two weeks of the following year. Students reported "*not passed*" are required to take the course over again before applying for re-examination.

REQUIREMENTS FOR GRADUATION.

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age and possess a good moral character. He must have completed the required courses in laboratory work, and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have been engaged in the study of medicine for the period of four years, the last of which must have been in this College.

FACILITIES FOR INSTRUCTION.

The museums of anatomy and materia medica, comprising thousands of specimens, models, and charts, afford the best means attainable for the close study of anatomy, physiology, and pathology. The facilities for the study of chemistry, afforded by the chemical laboratory, are not excelled in any medical college in this country, and the arrangements for the laboratory work are such that medical students, in classes, and working under the direction of the professors in charge, receive practical instruction in the courses in qualitative chemistry and in the analysis of urine, a knowledge of which has become absolutely indispensable to the successful physician. The histological laboratory, amply supplied with microscopes, sphygmographs, stereopticon, etc., offers rare facilities for the prosecution of practical work in experimental physiology and histology. The hygienic and anatomical laboratories are models of beauty and convenience, affording facilities for instruction in hygiene and in practical anatomy, unsurpassed, if equalled, by those of any other institution of learning in the United States. In addition to these, students have free access to the general and special cabinets of the University, containing about 250,000 specimens. (Compare pages 21 to 27.) The scientific and philosophical lectures, collateral to medicine, given in the Department of Literature, Science, and the Arts, are also open to them.

THE HOMŒOPATHIC HOSPITAL.

The new homœopathic hospital is in charge of a competent resident medical officer and an experienced matron, and is provided with a corps of

trained nurses; it contains large, airy, and well-lighted wards for male and female patients, private rooms for special patients, rooms for antiseptic surgery and for lying-in cases, dispensary, etc., all under the immediate direction of the Faculty, the members of which attend upon the sick in the hospital, and draw from them the material for clinical instruction.

The surgical, medical, gynæcological, and ophthalmological clinics are held twice a week in the spacious clinical amphitheatre, at which times examinations of patients are made by the professors in charge, or by students under the directions of professors, prescriptions given, and surgical operations performed in the presence of the class. The several clinics are held on separate days, of which the profession throughout the State will be notified.

In addition to special rooms for antiseptic surgery, with all modern apparatus and appliances, there are reference rooms for lying-in cases.

The hospital is kept open for patients during the whole year (twelve months), but no contagious diseases are admitted. Under the present organization, patients are much better accommodated, and clinical instruction is rendered more systematic and efficient than was formerly possible. The expenses to patients are only for their board, for unusual appliances or special nursing, and for medicines, the services of the Faculty being rendered gratuitously to those made available for clinical instruction.

Patients who desire to enter the hospital are requested to write to the resident physician to ascertain if there is room for their accommodation, and to obtain a circular giving more fully the rules governing admission.

TEXT-BOOKS AND BOOKS OF REFERENCE.

A list of text-books and books of reference recommended is given in the special Announcement of the College. The student who begins a course of reading without an instructor is recommended to devote the most of his time for the first year to the elementary branches, anatomy, physiology, and general medical chemistry.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

Annual Fee.—For Michigan students, *thirty dollars*; for all others, *forty dollars*.

* The Matriculation Fee and the Annual Fee must be paid in advance, and no student can select his seat until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

Diploma Fee.—For all alike, *ten dollars.*

Laboratory Expenses.—In the laboratories, the students pay for the material used, and the expenses vary somewhat with the care and economy practiced. The required laboratory courses cost approximately as follows:—

Anatomy,	\$20.00
Chemistry,	15.00
Bacteriology,	15.00
Physiological Chemistry,	15.00
Histology,	5.00
Electrotherapeutics,	8.00
Pathological Histology,	10.00

A deposit of the amount indicated for each of the above is required before the work of the course is begun.

The total amount of fees paid to the University during the whole four year's course, for matriculation, incidental expenses, materials used, and diploma, is, for Michigan students, about \$228.00, and for others, about \$283.00, varying a little with the student's actual laboratory expenses.

For additional information in regard to expenses, see page 35.

Students arriving in Ann Arbor, and desiring further information, should apply at the office of the Faculty, in the Homœopathic College, North University Avenue. The office will be open daily during the last week in September, and members of the Faculty, or some one who can give information, will be in attendance.

College of Dental Surgery.

A special Announcement giving further information in regard to this College is published annually. For copies of this Announcement, or for other information relating to the College, address Dr. J. Taft, Dean of the College, Ann Arbor, Michigan.

The College of Dental Surgery was established as a Department of the University in 1875. The college year extends from the first day of October to the Thursday following the last Wednesday in June. The lectures close about June 15, in order to allow time for the final examinations before Commencement.

REQUIREMENTS FOR ADMISSION.

Every candidate for admission must be eighteen years of age, and present to the Faculty satisfactory evidence of good moral character.

Matriculates in other departments of the University, and graduates of recognized colleges, academics, or high schools, are admitted without further examination on presentation of a proper diploma or certificate.

All other applicants are examined as to their previous education and their fitness to enter on the technical study of dentistry. The subjects on which examinations are held are as follows:

1. English.—(a) A grammatical and rhetorical analysis of short selections in prose and poetry. (b) An essay of not less than two pages (foolscap), correct in spelling, punctuation, capital letters, grammar, and paragraphing.

2. Mathematics.—*Arithmetic.*—Fundamental Rules, Fractions (common and decimal), Denominate Numbers, Percentage, Proportion, Involution and Evolution, and the Metric System of Weights and Measures.

Algebra.—Fundamental Rules, Fractions, Equations of the First Degree containing two or more unknown quantities.

Geometry.—Plane Geometry.

3. Physics.—An amount represented by Avery's Natural Philosophy or Gage's Introduction to Physical Science.

4. Botany and Zoology.—*Botany.*—The elements of Vegetable Anatomy and Physiology as given in Spalding's Introduction to Botany. *Zoology.*—Packard's Zoology, briefer course. Physical Geography may be substituted for either Botany or Zoology or for both.

5. Physiology.—Martin's The Human Body, briefer course.

6. History.—Myers's General History, or an equivalent; and Higginson's or Johnston's History of the United States.

7. Latin.—Jones's First Latin Book, or Harkness's Latin Reader, or an equivalent amount in any other text-book.

Examinations will be held in Ann Arbor on Saturday and Monday, September 28 and 30, 1895, at 10 A. M. Candidates are expected to be present at one of these dates. To provide for cases in which it is impossible for the applicant to be present, other examinations will be held at such times as may be determined by the Faculty. In order to receive credit for a full course, students must enter as early as October 15.

Before admission to the examination, every student is required to present to the Dean of the Faculty the Treasurer's receipt for the payment of the matriculation fee and the annual fee. It will therefore be necessary for the candidate to apply first to the Steward at his office in University Hall, register his name as a student in the College of Dental Surgery, and pay his fees to the Treasurer. In case of rejection, the money paid preliminary to examination will be refunded.

Admission examinations are also held at times designated by the examiners between June 1 and September 15 of each year, at the places and by the persons named below:

Dr. Wm. Mitchell, No. 39 Upper Brook St., London W., England.

Dr. J. G. Friederichs, No. 155 St. Charles St., New Orleans, La.

Dr. J. G. Templeton, 299 Penn Ave., Pittsburgh, Pa.

Dr. Victor H. Jackson, 240 Lenox Ave., New York, N. Y.

Dr. C. T. Stockwell, 327 Main St., Springfield, Mass.

Dr. Alfred W. Hoyt, 243 Wabash Ave., Chicago, Ill.

Dr. Immer C. St. John, Minneapolis, Minn.

Dr. T. J. Hill, Fargo, North Dakota.

Dr. W. J. Younger, San Francisco, Cal.

Dr. J. Taft, corner of Elm St. and Shillito Ave., Cincinnati, O.

Dr. Geo. B. Hayes, Tacoma, Washington.

These examinations are conducted in writing, and the papers written by the applicants are sent to Ann Arbor to be passed upon by the Faculty of the College.

ADMISSION TO ADVANCED STANDING.

Persons, otherwise qualified for admission to this college, who have studied dentistry in some recognized school for at least one year may be admitted to advanced standing after having passed a satisfactory examination on all the studies which have already been pursued by the class to which they seek admission.

Graduates of the Department of Medicine and Surgery (page 136) or other medical colleges of equal rank, are allowed credit toward graduation for so much of the required course in dentistry as was included in their medical course.

ASSIGNMENT OF SEATS.

Students are allowed to select seats in the lecture room and places in the dental laboratory in the order in which they pay their fees to the Treasurer; and each student is expected to occupy the seat selected during the session.

COURSE OF INSTRUCTION.

In the arrangement of the course of study it is the aim to make it such as will meet the requirements of the student and the expectations of the profession, and will secure the greatest benefit to the public. To accomplish these objects, and to accommodate and benefit those students who desire a thorough dental education, the course of instruction is made to cover three college years. The course thus affords time for the teaching and study of subjects not generally taught; and especially does it give time for thorough work in the laboratories. Though not fully covering the defects of preliminary education, this course, supplemented by repeated examinations and written exercises, remedies some deficiencies of earlier training and is of itself an efficient means of mental discipline, and of professional and scientific culture.

In the arrangement of the work a graded course of study is combined with repetition of the more important lectures, thus avoiding the confusion incident to the presentation of too many parts of the general subject to the mind of the student at an early period of his studies, and also obviating the objection of dismissing one part of a subject before its relations to other parts can be seen and appreciated.

SCHEDULE OF STUDIES.*

[For the Degree of Doctor of Dental Surgery.]

FIRST YEAR.

<i>Subjects.</i>	FIRST SEMESTER.	<i>Hours.</i>
Osteology and Anatomy,		51
General Chemistry,		85
Prosthetic Dentistry,		34
Dental Laboratory Work,		400

<i>Subjects</i>	SECOND SEMESTER	<i>Hours.</i>
Organic Chemistry,		51
Descriptive Anatomy,		51
Histology (lectures),		51
Prosthetic Dentistry,		34
Dental Laboratory Work,		400

SECOND YEAR.

<i>Subjects.</i>	FIRST SEMESTER.	<i>Hours.</i>
Dental and Comparative Anatomy,		34
Physiology,		85
Bacteriology,		68
Operative Principles and Materials,		17
Prosthetic Dentistry,		34

<i>Subjects.</i>	SECOND SEMESTER.	<i>Hours.</i>
Physiology,		85
Operative Principles and Materials,		17
Prosthetic Dentistry,		34
Operative Technique,		120

The following subjects are also included in the work of the second year, making a continuous course of laboratory instruction running through the year.

<i>Subjects.</i>	<i>Hours.</i>
Dissection,	120
Histological Laboratory Work,	80
Qualitative Chemistry,	120

THIRD YEAR.

<i>Subjects.</i>	FIRST SEMESTER.	<i>Hours.</i>
Dental Surgery and Pathology,		51
Oral Surgery,		34

*The column of hours gives the total number of hours of work required for the semester.

Pathological Histology,	17
Dental Medicine,	51
Orthodontia and Oral Deformities,	17
Prosthetic Clinic,	125
Operative Dentistry,	17
Operative Clinic,	250
<i>Subjects.</i>	SECOND SEMESTER.
Dental Surgery and Pathology,	51
Oral Surgery,	34
Dental Medicine,	51
Orthodontia and Oral Deformities,	17
Prosthetic Clinic,	125
Operative Dentistry,	17
Operative Clinic,	250

Opportunity is given during the third year for optional studies.

All students of the first and second years are obliged to pass examinations on all the required branches of their respective courses before leaving the College at the end of the year. These examinations are held at the close of each semester, and no student who has failed to pass two of the required branches in his course, is admitted to an advanced class during the first semester of the following year. No standing is given or certificate issued to any one who has failed to pass any of these examinations. Certificates of time are given for the actual period of attendance only.

Anatomy is studied didactically and practically. A full course on general osteology is taken with the medical classes in the Department of Medicine and Surgery (page 136). Special instruction is also given to students of dentistry in the anatomy and histology of all that pertains to the oral apparatus, embracing also particular attention to *comparative* dental anatomy.

In the histological laboratory the student not only acquires a knowledge of the principal structures and tissues of the animal body, but also becomes familiar with the workings and uses of the microscope.

In chemistry, students are required to attend lectures on general chemistry, and also to take a course in analytical chemistry with special reference to those agents or secretions that concern their future needs. A course in the analysis of saliva is optional.

In dental materia medica a special course of lectures embraces the history, pharmacy, pharmacology, and therapeutics of all drugs and remedies used in the treatment of diseases occurring in dental practice, and includes a discussion of pain obtundents, local and general anesthetics, and prophylactic remedies.

In dental pathology and surgery a course of lectures embraces a discussion of the various diseases which affect the teeth and mouth, and their

etiology and treatment. Special attention is given to diseases which pertain peculiarly to the practice of dentistry. Illustrative cases are shown and operated on in the presence of the class. All instruments, appliances, and methods that are of interest or value in this connection are exhibited and discussed.

A course of illustrated lectures on general pathological histology shows the general pathological processes and the microscopic structure of the several varieties of new growths met in general dental practice.

A course of lectures on clinical oral surgery embraces a consideration of diseases of the mouth and associated parts that are of special interest to the dentist, but which lie more within the province of the medical surgeon for treatment. Illustrative cases are exhibited and discussed, and operations performed before the class.

In operative dentistry the instruction is both didactic and practical. In the didactic course a full presentation of approved methods, appliances, and materials used in filling teeth is given, together with the principles which form the basis of practice. This instruction is supplemented by practical instruction in the clinical operating room, which is under the personal supervision of the professor of operative and clinical dentistry and his assistants. Here each student is required to spend fifteen hours a week at the chair, operating for patients, and in this way confirming the principles taught and obtaining such manipulative training as will result in desirable preparation for skillful practice.

In prosthetic dentistry the instruction is both didactic and practical. In the lectures the principles involved in the construction and application of artificial dentures, crowns and bridges, regulating devices, and continuous gum and cleft palate work are fully discussed, and such methods as have proved valuable and worthy are advocated. In the practical department each student in the second year has opportunity and is required to construct and adapt to the mouth practical dentures for the restoration of lost dental organs.

The instruction in dental mechanism embraces experimental construction of the various artificial dentures used to restore lost dental organs. Twenty-five hours a week in the first year are devoted to this work. It consists of taking impressions, making plaster models from impressions, making dies, swedging plates, grinding and adjusting teeth, soldering and finishing, vulcanizing and finishing plates, pouring and finishing cast metal, celluloid, and continuous gum plates, with such instruction as will familiarize the student with the most approved methods for constructing artificial substitutes. The junior class devotes one hundred and twenty hours to operative technique, in which sections of teeth are made and studied, and cavities are formed in teeth outside of the mouth and filled with cement, gutta-percha, tin, amalgam, and gold.

REQUIREMENTS FOR GRADUATION.

To be admitted to the degree of Doctor of Dental Surgery, the candidate must be twenty-one years of age, must possess a good moral character, must have devoted three years to the study of dentistry, and have passed all the examinations required in his course. Unless admitted to advanced standing, he must have attended three full years in this College. It is recommended that he attend these consecutively.

Every candidate is required to write from time to time upon the various branches of his course, and may at the discretion of the Faculty be required to prepare a thesis upon some assigned topic; he must present for inspection practical operations performed by himself in this college, and give satisfactory evidence of his skill and ability as a practitioner.

GRADUATE COURSE.

The Board of Regents have recently established a graduate course in dentistry. Its purpose is to meet the requests of a continually increasing number of students for further opportunity to pursue the scientific branches of the regular college curriculum, and also to meet an often expressed wish on the part of practitioners to pursue some special scientific investigation, which has been entered upon at home, with limited resources in the way of books of reference, laboratory facilities, and apparatus, and without the aid of instructors or advisors in associated sciences.

The graduate course is open only to graduates of this college, who have made marked records in their undergraduate work, and to graduates of this and of other colleges who have had at least two years of continuous practice since graduation, and who have published original articles of scientific value showing a capacity on their part for continuing such work with credit.

The course of study is independent of, and additional to, the regular undergraduate work, and embraces only such topics as will aid in training men to carry on scientific researches in subjects associated with practical dentistry, or with dentistry in its scientific aspect. As at present arranged, the work in the first semester deals principally with *materia medica*; and in the second with pathology, according to the following schedule:

<i>Subjects.</i>	FIRST SEMESTER.	<i>Hours.</i>
Laboratory work in Chemistry (general and organic),		100
Laboratory work in Physiology, or <i>Materia Medica</i> ,		70
Original research on some dental remedy,		200

<i>Subjects.</i>	SECOND SEMESTER.	<i>Hours.</i>
Laboratory work in Histology,		70
Laboratory work in Bacteriology,		120
Original research on some dental disease,		200

In addition to the foregoing, each student must take at least one of the following elective subjects:—general pathology, electrotherapeutics, quantitative chemical analysis, physiological chemistry, pharmacognosy, salivary analysis, general biology, dental metallurgy, or must prepare a thesis on the original research of either the first or the second semester.

The time required to complete the course prescribed for the advanced degree will depend upon the diligence and capacity of the student, but at least a year's work will be required in all cases.

Graduate students will be required to pay the same annual fee as undergraduates, and those who have not previously been matriculated in this University will also be required to pay the usual matriculation fee. The expenses of the laboratory courses will vary according to the character of the work taken.

The degree of Doctor of Dental Science (D. D. Sc.) will be conferred upon graduate students who complete the prescribed course as outlined above.

FACILITIES FOR INSTRUCTION.

For general information relating to the University libraries, museums, laboratories, and hospitals, see pages 20 to 31.

Among the facilities of special interest to students of dentistry the following may be mentioned.

DENTAL MUSEUM.

The Dental Museum is supplied with a large number of anatomical, physiological, pathological, and histological preparations, including a series illustrating dentition from infancy to the completion of the process in the adult, and the normal changes through life to old age, and also illustrative of the dental and osseous tissues. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems. The design is to make every practicable appliance in this direction available.

The museum has recently been enriched by the generosity of Professor Ford, who has contributed his entire collection of *crania* and odontological specimens, making it one of the best of its kind in this country.

DENTAL LIBRARY.

A library of dental science, containing almost every known work on this specialty, including an almost complete file of every Dental Journal

published, is shelved in the dental building, where it is accessible to all students. A finely appointed reading room is connected with the library.

LABORATORY OF MECHANICAL DENTISTRY.

This laboratory contains charcoal and coke furnaces, soldering table, rolling mill, and lathes; appliances for the various manipulations of prosthetic dentistry, such as the construction of artificial dentures in gold, continuous gum, silver, aluminum, and other bases; appliances for the regulation of teeth and for the mechanical treatment of oral deformities; and facilities for the manufacture of instruments. The laboratory has accommodations for two hundred students at a time. Particular attention is given to the manipulation and management of the precious metals with reference to their use for dental purposes.

Each student is furnished a bench containing a drawer and cupboard with lock and key, to contain the instruments that he is obliged to furnish for the prosecution of his work. If a student has any of these instruments it would be well to bring them; but it is more desirable to defer purchasing until the advice of the instructor in the college has been secured, as it is desirable that a complete and uniform outfit should be in the possession of each student. This outfit will cost about fifty dollars, and if taken care of will be a permanent investment, as the tools will all be necessary and useful in practice. These tools must be purchased at the beginning of the course, as they are required during the first as well as the succeeding years.

DENTAL OPERATING ROOMS.

The operating rooms are large, well-lighted, heated, and ventilated. The main room contains sixty operating chairs, with an extension bracket and movable table with drawers for instruments for each chair. Other rooms contain chairs and apparatus for the administration of anæsthetics, for the extraction of teeth, and for other purposes. Each student is required to supply himself with a dental engine and a full set of operating instruments; these must be purchased with the advice of the instructor, and will cost about one hundred dollars. Like the laboratory tools, they will be necessary to begin practice, and if carefully used will last many years; consequently care should be exercised in their purchase. They need not be purchased until the third year.

COURSES IN OTHER DEPARTMENTS.

Those who can command the time may also avail themselves of numerous lectures, or pursue elective studies, in the Department of Literature, Science, and the Arts (page 37); or may attend special lectures in the Department of Medicine and Surgery (page 136), such as those on gynecology and the diseases of children, or on other subjects that are important to the practicing dentist.

TEXT-BOOKS AND BOOKS OF REFERENCE.

First Year.—ANATOMY.—Gray.

CHEMISTRY.—Freer; Remsen.

ORGANIC CHEMISTRY.—Remsen.

HISTOLOGY.—Piersol; Schäfer; Klein.

MEDICAL DICTIONARY.—Gould; Thomas.

PROSTHETIC DENTISTRY.—Richardson.

CROWN AND BRIDGE WORK.—Evans.

Second Year.—PHYSIOLOGY.—Foster; Martin.

BACTERIOLOGY.—Fränkel; Sternberg; Vaughan and Novy.

QUALITATIVE CHEMISTRY.—Prescott.

METALLURGY.—Essig.

DENTAL ANATOMY.—Black; Tomes.

Third Year.—GENERAL PATHOLOGY.—Gibbes; Green.

DENTAL PATHOLOGY.—Wedl; Ingersol.

ORAL SURGERY.—Garretson; Tomes.

OPERATIVE DENTISTRY.—Harris; Taft.

ORTHODONTIA.—Talbot; Guilford.

DENTAL MEDICINE.—Wood; Gorgas; Potter.

REFERENCE BOOKS.—American System of Dentistry; Watts's Chemical Essays; Farrar's Irregularities of the Teeth; Mitchell's Chemistry; Cassidy's Dental Chemistry and Materia Medica; Kingsley's Oral Deformities.

FEES AND EXPENSES.*

Matriculation Fee.—For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

Annual Fee.—For Michigan students, *thirty dollars*; for all others, *forty dollars*.

Diploma Fee.—For all alike, *ten dollars*.

Laboratory Expenses.—*Chemical Laboratory.*—Students are required to pay for the materials and apparatus consumed by them. The average expense for the required course is about *ten dollars*. *Histological Laboratory.*—A charge of *three dollars* is made for material used in this laboratory. *Anatomical Laboratory.*—A charge of *ten dollars* is made for material used in dissecting. *Laboratory of Mechanical Dentistry.*—A fee of *three dollars* is charged to cover the cost of gas, plaster of Paris, wear and tear of laboratory supplies, etc. The expenses for

* The Matriculation Fee and the Annual Fee must be paid in advance, and no seat will be assigned to a student until after such payment. No portion of the fees can be refunded, except by order of the Board of Regents, to students who leave the University during the academic year.

tools for each student are about *fifty dollars*. The expenses for incidentals, teeth, etc., are about *fifteen dollars*.

The average total expenses of a student of dentistry, including University fees, are from two hundred and fifty to three hundred and fifty dollars for the college year. For additional information in regard to expenses, see page 35.

List of Graduates of 1894.*

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

BACHELOR OF LETTERS.

John Quincy Adams,	Elmer James Ottaway,
Hattie May Bailey, -	Alvick Alfonso Pearson,
Jamie Maud Blanchard, -	Carrie Eleanor Penfield, -
Lelia Brouillette, -	Andrew Johnson Purdy, Ph.B.,
Alfred Beethoven Connable,	<i>Alfred University,</i>
Katharine Andrew Crane, -	Helen Annetta Rice, -
Henrietta Isman Goodrich, -	Sara May Riggs, -
Benjamin Franklin Hall, Jr.,	Edmund Claude Shields,
Ray Hart,	Almeron Warren Smith,
Kate Almira Hopper, -	Annah May Soule, -
Herman Bertram Krogman,	Louise Helmuth Uren, -
Daniel Franklin Lyons,	Ernest Haven Warren,
Sarah Elizabeth Voorheis McComb,	Edward Lacy Watrous,
Dwight Otis Miller,	William Walter Wedemeyer,
Sara Genevieve O'Brien, -	Lloyd Justin Wentworth,
Frederic Leigh Osenburg,	Earl Farwell Wilson.

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BACHELOR OF SCIENCE.

(IN BIOLOGY.)

Galen Greenfield Crozier,	Warren Harmon Lewis,
William LeRoy Dunn, Ph.C., M.D.,	Samuel Denis Magers,
Adrian John Pieters.	

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* The List of Graduates contains the names of all persons on whom degrees were conferred during the year 1894. A dagger (†) indicates that the degree was conferred at some other time than Commencement.

BACHELOR OF SCIENCE.

(IN CHEMISTRY.)

Clare Briggs,	Emerson Romeo Miller, Phar. M.,	
Lauren Duane Carr,	Willard R. Pyle,	
George Lawrence Davison,	Eugene Cornelius Sullivan,	
Richard Fischer, Ph.C.,	Bertrand Stager Summers,	
Nellie E. Goldthwaite, —	Walter George Wallace.	10

BACHELOR OF SCIENCE.

(IN ELECTRICAL ENGINEERING.)

Clarence Sidney Cooke,	Charles Jacobson Harmon,	
Almon Henry Demrick,	Fred Rogers,	
	Fred Anson Sager.	5

BACHELOR OF SCIENCE.

(IN MECHANICAL ENGINEERING.)

Abraham Kohn Adler,	William Cole Conant,	
Robert Lewis Ames,	Herman Henry Eymmer,	
Archibald Lachlan Becker,	John Churchill Hammond,	
John Charles Bird,	Harrie D. Hamper,	
James Blair,	George Hayler, Jr.,	
Howard Everett Chickering,	William Stewart Smith,	
Harry Walter Clark,	Goldwin Starrett,	
	George Cabot Weare.	15

BACHELOR OF SCIENCE.

(IN CIVIL ENGINEERING.)

Herbert Ephraim French,	Frederick Charles Noble,	
Oscar Greulich,	Robert Kendrick Palmer,	
Max Lichtenstein,	William Pool Parker,	
Daniel Benjamin Luten,	Richard Quinn,	
Ralph Winthrop Newton,	Oscar Roberts,	
	Joseph Weare.	11

BACHELOR OF SCIENCE.

(IN GENERAL SCIENCE.)

Nellie Prescott Barrett, —	Sara den Bleyker, —	
Marcus Calvin Boylan,	Bernice Lena Haug, —	
Gertrude Buck,	William Lewis Ikenberry,	
Katherine Barker Camp, —	Fred Charles Kent,	
Robert Clair Campbell,	Walter James Kent,	
Henry Oliver Chapoton,	Ettie Blanch Connor Nichols, —	

Jessie Phelps, -	Georgia Smeallie, B.L., -	
Norman Wellington Price,	Harry Isaac VanTuyt,	
James Archibald Ross,	Eugene Cyrus Woodruff.	18

BACHELOR OF PHILOSOPHY.

Lissa Florence Bailey, -	Lou Ella La Tourette, -
Carl Evans Boyd, -	Anna Martha MacCracken, -
Thomas Parks Bradfield, -	Walter Park Martindale, -
Leo Martin Butzel, -	Amanda McCombs, -
George Jason Cadwell, -	Jessie Maud McIntyre, -
William Bradford Canfield, -	Isabella McRae, -
June Carpenter, -	Jesse Cameron Moore, -
William Herbert Charnley, -	Edgar Martin Morsman, Jr., -
Laura Eoline Clements, -	James Bertram Overton, -
Alexander Cumming, -	William Collins Parsal, -
Mary Ellen Duffy, -	Anna May Pemberton, B.L., -
Fannie Mabel Elliott, -	<i>Ohio Wesleyan Univ.,</i>
Robert Victor Friedman, -	Charles Andrew Robinson, -
Willard Clark Gore, -	Annie Laurie Rooney, -
Jessie Gertrude Harris, -	Carlton Raymond Rose, -
Susan Heffernan, -	Bernard Benjamin Selling, -
Sarah May Howard, -	Ella Gertrude Shorb, -
W. Wallace Hurd, -	Charles Beecher Smeltzer, -
Taka Kawada, -	Lucy Elizabeth Textor, -
Georgietta Kennedy, -	Anna Trainor, -
Helen Beecher King, -	George T. Tremble, -
Carrie Emma Kirtland, -	Charles Frederick Weller, -
William Lincoln Whitney.	

BACHELOR OF ARTS.

Charles Wallace Adams,	Ella Virginia Fitch, -
Fred Alexander,	Rudolph Frederick Flintermann,
Delia Sophia Bailey, -	Hally Frank Frederickson,
Archie Ernest Bartlett,	†Jacob George Halaplian,
Ernest Nelson Bullock,	Ernest Freeman Hall,
Jeannette Eliza Caldwell, -	Robert Foote Hall,
Albert Robinson Crittenden,	Walter Monroe Hamilton,
Josiah Dearborn,	Winifred Ava Higbee, -
James Henry Dickson,	Arthur Lucius Hubbard,
Walter Wendell Drew,	Gertrude Hull, -
John Dudley Dunham,	George Ingersoll, Jr.,
Dora Deett Elmer, -	Robert Emmons Jones,
Harry Oliver Evans,	Barend Herman Kroeze,

Adoniram Judson Ladd,	Samuel Archibald Smith,	
Carl Fred Lange,	Henry Arthur Spalding,	
Edward Marsh,	Robert Clark Stevens,	
John Ezra Miller,	Irene Stewart,	—
Wiley Wright Mills, A.B.,	Marian Una Strong,	—
<i>Hope College,</i>	John Burnham Taylor,	
Joseph Raleigh Nelson,	Martha Dickinson Taylor,	—
Frederick Whittlesey Newton,	†William Allen Underwood, <i>as of</i>	
Ruth Amelia Noble,	<i>the Class of 1868,</i>	
Marion Patton,	William Bullock Ward,	
Herbert Edmund Peckham,	John Wesley Welch,	
Stuart Hoffman Perry,	Frederick McKee White,	
Frank Woodworth Pine,	Ross Chauncey Whitman,	
Almira Ann Prentice,	Delos Franklin Wilcox,	
Albert John Rooks, A.B.,	John Arthur Whitworth,	
<i>Hope College,</i>	Annie Mumford Wiley,	—
Lewis Grover Seeley,	Frederick Doolittle Wilkerson,	
Roger Sherman,	Howe Allen Williams,	
†Dietrich Conrad Smith, Jr.,	Cora May Willsey.	61

MINING ENGINEER.

Walter John Baldwin, B.S. (M.E.).	1
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CIVIL ENGINEER.

Joseph Kendall Freitag, B.S. (C.E.), Louis Carlton Sabin, B.S. (C.E.).	2
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MASTER OF LETTERS.

Mabel Crabbe, B.L.,	Elsa Millicent Dopp, B.L.,	
	Walter John Hammill, B.L.	3

MASTER OF SCIENCE.

Elmer Ellsworth Bartlett, B.S.,	Edwin Raymond Cole, B.S.,	
<i>Iowa College,</i>	James C. Graves, B.S.,	
Benjamin Cluff, Jr., B.S.,	<i>Albion College.</i>	4

MASTER OF PHILOSOPHY.

Wirt McGregor Austin, Ph.B.,	Clara Frances Stevens,	
Flora Gale Barnes, Ph.B.,	<i>Mount Holyoke College,</i>	
<i>Albion College,</i>	Louis A. Strauss, B.L.,	
John Robert Effinger, Jr., Ph.B.,	Ira Dudley Travis, Ph.B.,	
Ida Bertha Paulina Fleischer, Ph.B.,	<i>Albion College,</i>	
Harrison McAllister Randall, Ph.B.,	Pauline Elisabeth Wies, Ph.B.	9

MASTER OF ARTS.

Warren Dwight Baker, A.B.,	Melvin Park Porter, A.B.,
Virginia Beauchamp, A.B.,	Henry Frederick Lewis Reichle, A.B.,
Walter Dennison, A.B.,	Edwin Carl Roedder, A.B.,
Genevieve Katharine Duffy, A.B.,	Henry Arthur Sanders, A.B.,
Ceylon Samuel Kingston, A.B.,	John Henry Schaffner, A.B.,
<i>St. Lawrence University,</i>	<i>Baker University,</i>
Newton D. Mereness, A.B.,	Jessie Louise VanVliet, A.B.,
William Henry Merner, A.B.,	<i>Wellesley College,</i>
John Augustus Munson, A.B.,	Louis Grant Whitehead, A.B.,
<i>Central Univ. of Iowa,</i>	Harry Dale Wright, A.B. 16

DOCTOR OF SCIENCE.

Moses Gomberg, M.S.	1
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DOCTOR OF PHILOSOPHY.

Kennedy Brooks, A.B.,	John Patterson Davis, A.M.,
Benjamin Chapman Burt, A.M.,	James Allen Smith, A.B.,
Charles Horton Cooley, A.B.,	<i>University of Missouri.</i> 5-241

DEPARTMENT OF MEDICINE AND SURGERY.

DOCTOR OF MEDICINE.

Ernest Marion Adams,	Calvin R. Elwood,
Minnie Maud Allen,	John William Foley,
Robert Bruce Armstrong, Ph.C.,	Joseph Foster, B.S., <i>Mich. Agr. Coll.,</i>
James Rae Arneill, A.B., <i>Lawrence</i>	John Henry Frost, Ph.C.,
<i>University,</i>	José Ramon Gallegos,
Meritt Moses Ayers,	William Aaron George,
Frithiof Emil Berge,	John Evans Gernand, B.L.,
Clarissa Sophia Bigelow, Ph.B.,	Stephen Clifton Glidden,
Vacil Demetoff Bozovsky,	James Louis Heard,
James Fleming Breakey,	Clarence Burke Hernam,
Thomas Henry Briggs, <i>as of the</i>	Howard Herrington,
<i>Class of 1862,</i>	Frederick William Heysett,
Christopher Brogan,	Brainard Spencer Higley, Jr.,
George Warner Burleigh,	Minnie Hoagland,
Edgar Robert St. John Caro,	Elijah Mark Houghton, Ph.C.,
Theodore Lincoln Chadbourne, B.S.,	Annie Ives,
Willis Earl Chapman,	Herbert Perry Kellogg,
Augustus Warren Crane,	Leverge Knapp, Ph.B.,
John Alexander Donovan,	Daniel Hartman Kress,

Lauretta Kress,	Fred Wheeler Palmer,
Edward Lowry Martindale,	Norton Hills Pardon,
Charles Thomas McCintock, Ph.D.,	John Abraham Pratt,
Julian McClymonds,	Howard Frederick Rand,
Orianna McDaniel,	William Henry Rheinfrank,
Robert McGregor,	Delia Maud Rice, A.B., <i>Knox College,</i>
George Edwin McKean,	Albert Philip Steinhart, Ph.G., <i>New</i>
Edward Everett McKnight,	<i>York College of Pharmacy,</i>
Edgar Calvin LeRoy Miller,	Edith Sturges, A.B., <i>Wellesley Coll.,</i>
Carlton Dolphin Morris,	Adolph Tyroler,
Frank Edwin Moyer,	Peter Martin van den Berg,
Edwin Andrew Murbach, A.B.,	Clark Randolph Wilcoxson,
<i>Heidelberg College,</i>	Albert Stotiff Wilson,
Stephen Grant Olmsted,	Ephraim Harrison Winter,
Alfred Berthier Olsen,	Walter George Wright.

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DEPARTMENT OF LAW.

BACHELOR OF LAWS.

Ned Abercrombie,	Arthur Brown,
Charles Francis Adams,	Milo Menoah Bruce,
Jacob Black Adams, A.B., <i>Waynes-</i>	†Milton Draper Bryce,
<i>burg College,</i>	Daniel John Buckley,
James Morris Adams,	Charles Albert Bull,
Fergus Lincoln Anderson,	George Jaffray Bunday,
Fritz Edgar Anderson,	Archibald Forbes Bunting,
Richard Apperson,	Charles Wilkes Burch, Ph.B., <i>Kan-</i>
Frederick William Ashton, B.S.,	<i>sas Wesleyan University,</i>
<i>Michigan Agricultural College,</i>	Charles W. Burdick,
Elmer Sylvester Avery,	Alexander George Burr,
Sewell Lee Avery,	William Henry Burtner, Jr.,
Earl D. Babst, Ph.B.,	Alvah P. Cady, B.S.,
George Howard Bailey,	<i>Olivet College,</i>
Edward Burgoyne Baker,	Richard Lee Cameron,
Joseph Edmund Barrell,	Henry Ernest Candler, B.S.,
Eugene Batavia,	Edward Eugene Carr,
†Arthur Dougall Bate,	Rex Ronald Case,
Allen Samuel Beach,	Charles Erehart Chadman,
Aaron Joseph Bessie,	Frank Edgar Chamberlain,
Chauncey Rolla Bishop,	John F. Chambers,
Alfred Franklin Bissell,	Charles Whitney Chapman,
Milton Edward Blake,	Robert Clowry Chapman,

Leslie Howard Chatterton,	Henri Franklin Eshleman,
Ira Albert Clark,	George Mark Evans,
Milton Lee Clawson,	Harvey Aretas Evans, A.B., B.S.,
Holbrook Gilson Cleaveland, A.B.,	<i>Southern Normal College,</i>
Harvey Kilmer Clock,	George Dudley Fairbanks,
Charles Edgar Cochran,	George Franklin Felts,
Fred James Cochran,	Raymond Marshall Ferguson,
Charles John Cole, A.B., <i>Oberlin</i>	Leonard Fiske,
<i>College,</i>	Charles Fitzgerald,
Matthew Francis Coleman,	†Luther Freeman,
Michael Leo Coleman,	Benjamin Friend,
Edward Garland Coll,	George Washington Fuller,
Victor Otho Coltrane, A.B., <i>Drury</i>	Walter Shepard Fulton,
<i>College,</i>	William J. Galbraith,
Oscar Bradbury Conant,	George Jacob Genebach,
Herbert Thomas Condon, A.B., <i>Uni-</i>	Cyrus William George,
<i>versity of Oregon,</i>	Vladimir August Geringer, Ph.B.,
Grant Conklin, Ph.B., <i>Hillsdale</i>	George Gerlach,
<i>College,</i>	George John Gleim,
John Peck Conrick,	Clifton DeWitt Gordon,
Norman Bruce Countryman,	Evan Benson Goss,
Oliver Ellsworth Cramer, A.B.,	Daniel Henry Grady,
<i>Augustana College,</i>	Humphrey Snell Gray, A.B.,
Thomas Graham Crothers, A.B.,	John McAllaster Haddock,
<i>Leland Stanford, Jr., Univ.,</i>	George Halverson,
James Halleck Crowell, Ph.B.,	Louis Heaton Hanna,
<i>Trinity Coll:ge,</i>	James Joseph Harrington,
Frank Crozier, B.S., <i>Hanover Colleg:</i>	Hyrum Smith Harris,
Alonzo Leonidas Curtis,	Joseph Alma Harris,
Thomas Whitfield Day,	Nathan John Harris,
Charles Arza Denison, B.L.,	William Morris Harrison, B.S.,
Ulysses Grant Denman,	<i>Maryville College,</i>
H. Clifton De Ran, B.S., A.B.,	Walter Cunningham Hartman,
<i>National Normal University,</i>	Ralph White Hartzell,
Martin John Dillon,	James Mark Harvey, Jr.,
Frank Harry Dunnahoo,	William Perry Harvey,
Irving William Durfee,	John Harvey Hassinger,
Lucian Johnson Eastin,	Frederick Hosea Hathhorn,
Emma Eaton,	Dennis Benjamin Hayes,
Walter Abijah Eckles, B.C.E., <i>Cor-</i>	Robert Charles Henderson,
<i>nell College,</i>	Edwin Charles Henning,
Daniel Abraham Edwards,	Lot Russel Herrick, B.L.,
Willis Victor Elliott,	<i>Univ. of Illinois,</i>

- William Rhodes Hervey, B.L.,
Arkansas Industrial Univ.,
 Albert Sylvester Hinds,
 John Laurence Hollander,
 Warren William Holliday,
 Bernard Joseph Hope,
 Orestes Easton Hopkins,
 Sherman Henry Hoverter,
 William Jeremiah Howard,
 Harland Bradley Howe,
 John Stanley Hurd, A.B.,
 Jerauld John Ingle,
 Samuel Pashley Irwin,
 Charles Adam James,
 George Henry Kane, A.B.,
Duquesne College,
 William Christopher Kenaga,
 Fred Alonzo Kies,
 Torazo Kikuchi,
 John James Kiley,
 Samuel Denton Kinne,
 Joseph Edgar Kirby, A.B.,
Searcy College,
 Walter Hermann Kirk,
 Jacob Koenigstein,
 John Kroodsma,
 Charles Henry Kubat,
 Franz Christian Kuhn, B.S.,
 William John Landman,
 Oscar J. Larson,
 Edward Fleury LeGendre,
 John Adolph Lentz,
 George Edward Leonard, B.S.,
Coe College,
 Arthur Maurice Lewald, A.B.,
Union College,
 Harry Pratt Lewis,
 John Lewman,
 Lewis Bonner Lindsay,
 Harry Clay Livengood,
 Charles Parker Locke, B.S.,
Michigan Agr. College,
 William Bryan Locke,
 Ira Milton Long,
 Jesse B. Luse,
 Elias Wesley Marlatt, A.B.,
Geneva College,
 Frederick William Marsh,
 David James Marshall,
 Darwin Thomas Mason, A.B.,
Cornell College,
 Charles Henry Mattingly,
 Russell Norman McConnell,
 William Stephen McConnell,
 William Herbert Lee McCourtie,
 James Hugh McDonald,
 Peter McDonald, A.B.,
German English College,
 Joseph Franklin McGregor,
 Charles Augustine McKnight,
 Michael Leo McLaughlin,
 Harry Clinton Mehan,
 Albert Cyril Melchior,
 William Henry Merner, A. B.,
 Homer Dwight Messick, B.S.,
Hiram College,
 Harry Eugene Michael,
 John Herbert Miller,
 Allen Gurrey Mills, B.S., *Earlham*
College,
 Hugh Albert Minahan,
 Robert Emmet Minahan, M.D.,
Rush Medical College,
 †Robert Bruce Mitchell,
 Webster V. Moffett,
 J. Monroe Mohny,
 Jesse Cameron Moore,
 Willis Knox Moore,
 Adelbert Mosher,
 Robert Lee Motley, A.B., *William*
Jewell College,
 Henry Edmund Naegely,
 Louis George Nerreter,
 John Blackwell Newman, A.M.,
University of Notre Dame,
 Andrew Richards Nichols,

Byron Lee Oliver,
 Charles Daniel Orear,
 Edwin Colfax Owen,
 Joseph Edmund Page,
 Charles Arthur Park, A.M.,
University of Wooster,
 Charles Chandler Parker,
 Charles Lucius Parker, A.B.,
Upper Iowa University,
 Joseph Edwin Parker,
 Robert Stone Parks,
 Augustus Asa Partlow,
 Harry Howard Patterson, B.S.,
Geneva College,
 Louis Philip Paul,
 John Vincent Pearson,
 Worth Willard Pepple,
 †John Furness Peters,
 Gilbert Walter Phelps,
 Clarence Abram Plank,
 Edward Dwight Pomeroy,
 Clarence Eugene Pope,
 David Eugene Porter,
 James Leonard Poston, A.B.,
Washburn College,
 Vanvorhis Ally Powell,
 John Ward Powers,
 Charles Arthur Pratt, Ph.B.,
Oskaloosa College,
 James Downing Putnam,
 William Goodpaster Ramsey,
 Charles Howard Rector,
 Benjamin Franklin Reed,
 Guy Leonidas Reed,
 Hedley Vicars Richardson, Ph.B.,
 Judson Elias Richardson,
 Lulu Buffington Richardson,
 Victor Howard Ringer, Ph.B.,
DePauw University,
 Frank Augustus Rockhold,
 Henry Theodor Ronning,
 Hugh Emerson Root,
 Daniel Lindsay Russell, Jr.,

Samuel McNeal Schall,
 Oreon Earl Scott, A.B., *Bethany College,*
 Raymond Gilmore Scott, A.B.,
Bethany College,
 Bertram Shane,
 James J. Sheridan,
 Reuben Daniel Silliman,
 Edwin Walter Sims,
 Rufus Franklin Skeels,
 Fred Wilbur Smith,
 Hugh Carnes Smith,
 Elliott Spalding,
 Sherman Clark Spitzer, B.L.,
 Francis Marion Springer,
 Christie Alfonzo Stearns,
 Clarence Claud Stearns,
 Harry Lindley Stearns,
 Lenn L. Stevens, A.B., *University of Oregon,*
 James Zebulon Stewart, Jr.,
 John Grover Stone,
 Lewis Augustus Stoneman,
 John Ephraim Swanger,
 Ralph Percy Tannehill,
 James Taylor,
 Charles Hamilton Tindall,
 John Charles Tobias,
 McKenzie Robertson Todd,
 Charles Henry Towle, B.L.,
 Julius Custis Travis,
 Dudley Clifford True,
 Henry Casimir Vidal, B.S., *University of Paris,*
 Arthur Joseph Vinson,
 John Joseph Vlach,
 Luther Ogden Wadleigh, Ph.B.,
Syracuse University,
 John Thomas Wagner, A.B.,
Ursinus College,
 John Delisle Wakely,
 Frank Walters,
 Henry Walters,

George Fullington Waters,
Charles Eugene Ward,
Henry William Webber,
Adolph Weinberg,
Edward McKenzie Wellman,
James Horatio Westcott,
William Erastus Wheeler, Jr.,
Bartlett Wiley,

Percy Wilson, A.B., *College of New Jersey*,
Benjamin Franklin Wollman,
Walter Wellington Woodbury,
Harry Fralick Worden,
John Wright,
Harry Leroy Yartin,
George Frederick Zimmerman,
John William Zuber.

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MASTER OF LAWS.

Mary Estelle Benson, LL.B.,
Frank Leslie Bowen, LL.B.,
Charles Knox Friedman, LL.B.,
Franklin Jay Griffen, LL.B.,
Lloyd Frederick Harms, LL.B.,
James Stanhope Henton, LL.B.,
Robert Albert Howard, LL.B.,
John Bernard Hoy, LL.B.,
Francis Goewey Jones, LL.B.,
Isaac Bernard Lipson, LL.B.,
Fred Philip Muhlhauser, LL.B.,
Cincinnati Law College,

Stephen A. Nowlin, LL.B.,
Purcell Rowe, LL.B.,
Fritz Rudin, LL.B.,
Charles William Scrutchin, LL.B.,
Oscar Ferdinand Sessinghaus, LL.B.,
William Cyrus Swan, LL.B.,
Joseph Henry Van Tassel, LL.B.,
William Thomas Webb, LL.B.,
William Shipp Withers, LL.B.,
Cumberland University,
Herbert Agnew Wright, LL.B.,
Northern Indiana Coll. of Law.

21-299

SCHOOL OF PHARMACY.**PHARMACEUTICAL CHEMIST.**

Ransom Sidney Armstrong,
Clarence Eugene Barnhart,
Arthur Wilson Epley,
Lovell Farnum,
Edward Albert Grochau,
Harry Hall Hudson,
John Henry Jones,
Samuel Robert Knox,
John Charles Maxwell,
James C. McGregor,
Grace Ellen McNoah,

Allen Henry Mead,
Thomas E. Murdock,
Marion Franklin Nichols,
Delia O'Connor,
Fred Lyle Robertson,
James Seymour,
George Charles Steventon,
John Ludwell Tegarden,
Charles Orlando Topping,
Charles Henry Williams, Ph.B.,
Adrian College,

Parke Ernest Wise.

22

MASTER OF PHARMACY.

L. D. Havenhill, Ph.C.

1-23

HOMŒOPATHIC MEDICAL COLLEGE.

DOCTOR OF MEDICINE.

Charles Augustus Critchlow,	†Issie Sharring Powers,
Charlie Gifford Jenkins,	Susan Emo Pullin,
Frederick Charles Kruemling,	Cora Luarky Stitt,
Lester Elmer Peck,	Glenn Guy Towsley,
Burt Dexter Walker.	

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COLLEGE OF DENTAL SURGERY.

DOCTOR OF DENTAL SURGERY.

Della Cordelia Ostrander Adams,	Garrett Sylvester Hartley,
Frank Paxson Adams,	Charles Pinckney Haselden,
Charles Francis Amsden,	George Elba Hathaway,
Otto Anderson,	William Josiah Higgins,
Adelbert Hawthorne Babcock,	John Louis Hoover,
Edwin Irving Backus,	Homer Fall Hussey, Ph.B., <i>Earlham</i>
Andrew Spencer Bailey, B.S., <i>Law-</i>	<i>College,</i>
<i>rence University,</i>	George Renshaw Johnson,
Roy Edwin Bailey,	George Wesley Kenson,
Fred William Blake,	Allen Huylar Kessler,
Henry Martyn Bridgman,	Joseph Lathrop, Jr.,
Damon Isaiah Butler,	Charles Cummings Lick,
Thomas Sherman Buzzard,	Mary Linde,
Anthony Joseph Casey,	Robert Bruce Mackenzie,
Charles Douglas Cassidy,	Michael Joseph McCormick,
Frederick Henry Coddling,	Charles Aloysius McGettigan, Jr.,
Estus Hammond Collier,	James Archibald McIndoe,
Gerald Willard Collins,	Walter Charles McKinney,
Robert Edgar Davies,	Anna Katharine Miller,
Frank Benjamin Dawley,	Charles Lester Mitchell,
James King Douglas,	Albert Francis Monroe,
William Booth Elster,	George McWilliams Moore,
Edward Leigh Gedney,	Miles Jacob Moyer,
†Albertus Christian van Raalte	Allen Eugene Mulder,
Gilmore,	Forest Joseph Overholt,
William E. Goucher,	Barnum Herbert Pearce,
Myron Perry Green,	Benjamin Franklin Pearce,
Harry Loyal Griswold,	George Andrew Servis,
Alfred Whipple Hall,	Frank Lee Stow,
William Anthony Hart,	Harvey Arthur Sturdevant,

Dean Nathaniel Swift,	Charles Traver Winery,	
Charles Henry Terry,	Walter Morey Wilkins,	
Charles Reed Vanderbelt,	Wallace V. Wolvin,	
Albert Wesley Weible,	George Philip Wurster.	65

DOCTOR OF DENTAL SCIENCE.

†Carrie Marsden Stewart, D.D.S. 1—66

HONORARY DEGREES.**MASTER OF ARTS.**

OTTO KIRCHNER,
Professor in the Department of Law.

FLOYD RUSSELL MECHEM,
Professor in the Department of Law.

REV. FRANK O'BRIEN,
Formerly a Member of the Michigan State Board of Corrections
and Charities. 3

DOCTOR OF LAWS.

MARK WALROD HARRINGTON, A.M.,
Chief of the United States Weather Bureau.

GEORGE HERBERT PALMER, A.M.,
Professor in Harvard University.

GEORGE MILLER STERNBERG, M.D.,
Surgeon General of the United States Army. 3—6

Total number of degrees conferred, 708.

FACULTIES AND STUDENTS.*

Department of Literature, Science, and the Arts.

FACULTY.

JAMES B. ANGELL, LL.D., *President*.
ALBERT B. PRESCOTT, PH.D., M.D.
REV. MARTIN L. D'OOGHE, LL.D., *Dean*.
CHARLES E. GREENE, A.M., C.E.
WILLIAM H. PETTEE, A.M.
EDWARD L. WALTER, PH.D.
ISAAC N. DEMMON, A.M.
ALBERT H. PATTENGILL, A.M.
MORTIMER E. COOLEY, M.E.
WOOSTER W. BEMAN, A.M.
VICTOR C. VAUGHAN, PH.D., M.D.
THOMAS M. COOLEY, LL.D.
CHARLES S. DENISON, M.S., C.E.
HENRY S. CARHART, LL.D.
RAYMOND C. DAVIS, A.M.
VOLNEY M. SPALDING, A.B.
HENRY C. ADAMS, PH.D.
CALVIN THOMAS, A.M.
BURKE A. HINSDALE, LL.D.
RICHARD HUDSON, A.M.
ALBERT A. STANLEY, A.M.
FRANCIS W. KELSEY, PH.D.
OTIS C. JOHNSON, PH.C., A.M.
PAUL C. FREER, PH.D., M.D.

* A dagger (!) preceding a student's name indicates that he pursues studies, for the whole or a part of the year, in more than one department of the University.

ANDREW C. McLAUGHLIN, A.B., LL.B.
JOSEPH B. DAVIS, C.E.
ASAPH HALL, JR., Ph.D.
ISRAEL C. RUSSELL, M.S., C.E.
WARREN P. LOMBARD, A.B., M.D.
JACOB E. REIGHARD, Ph.B.
THOMAS C. TRUEBLOOD, A.M.
JAMES A. CRAIG, Ph.D.
JOHN C. ROLFE, Ph.D.
FREDERICK G. NOVY, Sc.D., M.D.
GEORGE HEMPL, Ph.D.
EDWARD D. CAMPBELL, B.S.
FRED M. TAYLOR, Ph.D.
PAUL R. DE PONT, A.B., B.S., *Registrar*.
CLARENCE G. TAYLOR, B.S.
JOSEPH H. DRAKE, A.B.
FRED N. SCOTT, Ph.D.
FRANK N. COLE, Ph.D.
ALEXANDER ZIWET, C.E.
GEORGE W. PATTERSON, JR., A.M., S.B.
GEORGE A. HENCH, Ph.D.
FRANK C. WAGNER, A.M., B.S.
G. CARL HUBER, M.D.
JOHN O. REED, Ph.M.
DEAN C. WORCESTER, A.B.
FREDERICK C. NEWCOMBE, B.S., Ph.D.
ALFRED H. LLOYD, Ph.D.
JOSEPH L. MARKLEY, Ph.D.
MORITZ LEVI, A.B.
ELMER A. LYMAN, A.B.
GEORGE O. HIGLEY, M.S.
JONATHAN A. C. HILDNER, A.M.
DAVID M. LICHTY, M.S.
BENJAMIN P. BOURLAND, A.M.
JOHN R. EFFINGER, JR., Ph.M.
LORENZO N. JOHNSON, A.M.
HERBERT F. DE COU, A.M.
ERNST H. MENSEL, A.M.
LAWRENCE A. McLOUTH, A.B.
EARLE W. DOW, A.B.
GEORGE E. DAWSON, A.B.
MOSES GOMBERG, Sc.D.
CLARENCE G. WRENTMORE, B.S.

KARL E. GUTHE, Ph.D.
 TOBIAS DIEKHOFF, A.B.
 GEORGE A. MILLER, Ph.D.
 W. FRANKLIN EDWARDS, B.S.
 SIDNEY D. TOWNLEY, M.S.
 MAX WINKLER, Ph.D.
 HENRY A. SANDERS, A.M.
 CLARENCE L. MEADER, A.B.
 CHARLES A. KOFOID, Ph.D.
 WALLACE L. ELDEN, A.M.
 ARTHUR G. HALL, B.S.
 WILLIAM D. JOHNSTON, A.M.
 GEORGE REBEC, Ph.B.
 FRANK R. LILLIE, Ph.D.
 DANIEL B. LUTEN, B.S.
 REV. JOHN BIGHAM, Ph.D.

Other Instructors and Assistants.

~~ALICE L. HUNT.~~
~~CHARLES H. COOLEY, Ph.D.~~
~~FRANK H. DIXON, Ph.B.~~
~~PERRY F. TROWBRIDGE, Ph.B.~~
~~JOHN B. JOHNSTON, Ph.B.~~
~~LOUIS A. STRAUSS, Ph.M.~~
~~WARREN H. LEWIS, B.S.~~
~~CARLTON D. MORRIS, M.D.~~
~~JOHN H. SCHAFFNER, A.M.~~
~~EDWIN H. EDWARDS, B.S.~~
~~WILLARD C. GORE, Ph.B.~~
~~JOHN P. DAVIS, Ph.D.~~

STUDENTS.*

HOLDER OF THE ELISHA JONES CLASSICAL FELLOWSHIP.

NAME.	RESIDENCE.
Walter Dennison, A.B., 1893, Latin; Greek; Classical Archæology.	<i>Ann Arbor.</i>

* The principal subjects of study pursued by candidates for an advanced degree are indicated under their respective names; the subject first named being the major study.

**CANDIDATES FOR AN ADVANCED DEGREE AND OTHER
RESIDENT GRADUATES.**

NAME.	RESIDENCE.
Charles Wallace Adams, A.B., 1894, Political Economy; American History; European History.	<i>Ann Arbor.</i>
Warren Babcock, Jr., B.S., <i>Mich. Agr. Coll.</i> , 1890, <i>Agricultural College.</i>	
Archie Ernest Bartlett, A.B., 1894, Greek; Latin; Classical Archæology.	<i>Cardington, O.</i>
Lyman James Briggs, B.S., <i>Mich. Agr. Coll.</i> , 1893, <i>Lacey.</i> Physics; Mathematics; Mechanics.	
Gertrude Buck, B.S., 1894, Rhetoric; Psychology; English Literature.	<i>Kalamazoo.</i>
Lauren Duane Carr, B.S., 1894,	<i>Ann Arbor.</i>
George Albert Clark, Ph.B., <i>Hillsdale Coll.</i> , 1887, <i>Benzonia.</i>	
Harry Walter Clark, B.S., 1894,	<i>Ann Arbor.</i>
Ida May Clendenin, B.S., <i>Univ. of the State of Missouri</i> , 1886, M.S., 1893, Phanerogamic Botany; General Botany; Animal Morphology.	<i>Mexico, Mo.</i>
William Eli Davis, B.S., <i>Mich. Agr. Coll.</i> , 1889,	<i>Wacousta.</i>
James Henry Dickson, A.B., 1894,	<i>Portland, Ore.</i>
Tobias Dickhoff, A.B., 1893, German; Gothic; English.	<i>Ann Arbor.</i>
Frank Haigh Dixon, Ph.B., 1892, Political Economy; Finance; American History.	<i>Ann Arbor.</i>
Edwin Hugh Edwards, B.S., 1892, Physiological Botany; Fungi; Embryology.	<i>Ann Arbor.</i>
Charles Franklin Emerick, A.B., <i>Wittenberg Coll.</i> , 1889, M.S., <i>Mich. Agr. Coll.</i> , 1891, Political Economy; History; Pedagogy.	<i>Ann Arbor.</i>
Rudolph Frederick Flintermann, A.B., 1894, Organic Chemistry; Quantitative Analysis; Mineralogy.	<i>Detroit.</i>
Willard Clark Gore, Ph.B., 1894, Rhetoric; English Literature; Philosophy.	<i>Ann Arbor.</i>
Herbert Jay Goulding, B.S., 1893,	<i>Saginaw, East Side.</i>
Jacob George Halaplian, A.B., 1894, Hebrew; Assyrian; Hellenistic Greek.	<i>Saginaw, West Side.</i>
Arthur Graham Hall, B.S., 1887, Physics; Mechanics; Heat.	<i>Ann Arbor.</i>
John Churchill Hammond, B.S., 1894, Mathematics; Astronomy; Civil Engineering.	<i>South Lyon.</i>
Wilbur Olin Hedrick, B.S., <i>Mich. Agr. Coll.</i> , 1891, <i>Agricultural College.</i> Political Economy; Finance; History.	
Ellen Clara Hogeboom, B.S., 1877, General Chemistry; Organic Chemistry; Crystallography.	<i>Saginaw, West Side.</i>

-
- W. Wallace Hurd, Ph.B., 1894, *Clio*.
Political Economy; European History; American History.
- Samuel Allen Jeffers, A.B., *Central Wesleyan Coll.*,
1892, *New Florence, Mo.*
Latin; Psychology; Pedagogy.
- John Black Johnston, Ph.B., 1893, *Ann Arbor*.
Animal Morphology; Physiology; Physiological Psychology.
- Ella Adelaide Knapp, A.B., *Kalamazoo Coll.*,
1888, A.M., 1890, *Kalamazoo*.
English Literature; Anglo Saxon; American History.
- Barend Herman Kroeze, A.B., 1894, *Grand Rapids*.
Hebrew; Political Economy; Philosophy.
- Elbert Clarence Lane, B.S., *Adrian Coll.*, 1893,
A.B., *ibid.*, 1894, *Adrian*.
Greek; Latin; Classical Archæology.
- Daniel Benjamin Lutén, B.S., 1894, *Grand Rapids*.
Civil Engineering.
- Elmer Adelbert Lyman, A.B., 1886, *Ann Arbor*.
Mathematics; Mechanics; Astronomy.
- Hubert Berton Mathews, B.S., *South Dakota*
Agr. Coll., 1892, *Brookings, S. Dak.*
- † Benjamin Fuller McLouth, B.S., *South Dakota*
Agr. Coll., 1893, *Brookings, S. Dak.*
- Newton D. Mereness, A.B., 1892, A.M., 1894, *Ann Arbor*.
History; Sociology; History of Philosophy.
- Emerson Romeo Miller, Ph.C., 1892, Ph.M., 1893,
B.S., 1894, *Ann Arbor*.
General Chemistry; Organic Chemistry; Mineralogy.
- Clarence Mortimer Mulholland, Ph.B., *Albion*
Coll., 1894, *Orion*.
United States History; Comparative Constitutional Law; Political Economy
- Ralph Winthrop Newton, B.S., 1894, *Ann Arbor*.
- Sara Genevieve O'Brien, B.L., 1894, *Ann Arbor*.
European History; English Literature; Pedagogy.
- William Walter Parker, B.S., *Mich. Agr. Coll.*,
1893, *Charlotte*.
Organic Chemistry; General Chemistry; Mineralogy.
- Cyrus Clark Pashby, B.S., *Mich. Agr. Coll.*, 1894, *Agricultural College*.
- Stephen Farnum Peckham, A.M., *Brown Univ.*,
1870, *Ann Arbor*.
Chemistry; Philosophy; Lithology.
- John Burton Phillips, A.B., *Indiana Univ.*, 1889,
A.M., *ibid.*, 1891, *Lansing*.

-
- Melvin Park Porter, A.B., 1893, A.M., 1894, *West Sunbury, Pa.*
General Psychology; Experimental Psychology; Hebrew.
- George Robert Ray, Jr., B.L., 1892, *Manistee*
European History; American History; Pedagogy.
- Howard Monroe Raymond, B.S., 1893, *Grass Lake.*
- Edwin Carl Roedder, A.B., 1893, A.M., 1894, *Ann Arbor.*
German; Old English; Sanskrit.
- Calvin Cortland Ryder, B.S., *Hiram Coll.*, 1891, *Hiram, O.*
- Henry Arthur Sanders, A.B., 1890, A.M., 1894, *Ann Arbor.*
Latin; Greek; Classical Archaeology.
- John Henry Schaffner, A.B., *Baker Univ.*, 1893, *Morganville, Kan.*
A.M., 1894,
Botany; Morphology of Fungi; Palæobotany.
- Annah May Soule, B.L., 1894, *Ann Arbor.*
United States History; Political Economy, Comparative Constitutional Law
- Robert Clark Stevens, A.B., 1894, *Malone, N. Y.*
- Carrie Taylor Stewart, A.B., *Univ. of Kansas*, 1892, *Negaunee.*
German; French; Gothic.
- Louis A. Strauss, B.L., 1893, Ph.M., 1894, *Ann Arbor.*
Rhetoric; European History; English Literature.
- Sidney Dean Townley, B.S., *Univ. of Wisconsin*,
1890, M.S., *ibid.*, 1892, *Ann Arbor.*
Practical Astronomy; Theoretical Astronomy; Optics.
- Ira Dudley Travis, Ph.B., *Albion Coll.*, 1889,
Ph.M., 1894, *Albion.*
American History; Political Economy; European History.
- Perry Fox Trowbridge, Ph.B., 1892, *Ann Arbor.*
Organic Chemistry; Physics; Analytical Chemistry.
- Mary Etta Trueblood, Ph.B., *Earlham Coll.*, 1893, *Jamestown, O.*
Mathematics; German; Astronomy.
- Arthur Johnson Wilbor, B.S., *Lawrence Univ.*,
1892, *Oshkosh, Wis.*
- Delos Franklin Wilcox, A.B., 1894, *Raisinville.*
Comparative Constitutional Law; American History; Sociology.
- Neil Hooker Williams, B.S., 1893, *Richmond.*
Physics; Chemistry; Mathematics.
- Clarence George Wrentmore, B.S., 1893, *Ann Arbor.*
Civil Engineering.

The following students, enrolled in other departments, are also candidates for an advanced degree in this Department. See page 120.

ENROLLED IN THE DEPARTMENT OF MEDICINE AND SURGERY.

- David Porter Mayhew, Ph.B., 1893, *Detroit.*
Physiology; Bacteriology; Physiological Chemistry.

ENROLLED IN THE DEPARTMENT OF LAW.

Walter Park Martindale, Ph.B., 1894,	<i>Fulton, Ill.</i>
United States Constitutional History; Political Economy; Comparative Constitutional Law.	
Stuart Hoffman Perry, A.B., 1894,	<i>Pontiac.</i>
American History; European History; Philosophy.	
Bernard Benjamin Selling, Ph.B., 1894,	<i>Detroit.</i>
Constitutional Law; International Law; English Literature.	
Raymond Elmoine VanSyckle, B.S., 1891,	<i>Bay City.</i>
Political Economy; Political Philosophy; American History.	

CANDIDATES FOR A MASTER'S DEGREE AND FOR A DEGREE
IN ENGINEERING, STUDYING IN ABSENTIA.

NAME.	RESIDENCE.
William Dearborn Ball, B.S., 1890, Mechanical Engineering.	<i>Chicago, Ill.</i>
Thomas Edson Barnum, B.S., 1892, Electrical Engineering.	<i>Oak Park, Ill.</i>
Will Hazen Boughton, B.S., 1893, Civil Engineering.	<i>Granville, O.</i>
Allen Lysander Colton, Ph.B., 1889, A.B., 1890, Astronomical Photography; Optics; Practical Astronomy.	<i>Mount Hamilton, Cal.</i>
Charles Hall Cook, A.B., 1874, English Literature; History; Philosophy.	<i>Denver, Col.</i>
Ella Virginia Fitch, A.B., 1894, Latin; Greek; German.	<i>Joliet, Ill.</i>
Humphrey Snell Gray, A.B., 1893, LL.B., 1894, Constitutional Law; Political Economy; History.	<i>Ludington.</i>
David Emil Heineman, Ph.B., 1887, English Drama; History of the Fine Arts; International Law.	<i>Detroit.</i>
William Andrew McAndrew, A.B., 1886, English Drama; History; Pedagogy.	<i>Brooklyn, N. Y.</i>
Frank Thomson Merry, B.L., 1890, History; American History; Political Economy.	<i>Ann Arbor.</i>
William Vaughan Moses, B.S., 1889, Mechanical Engineering.	<i>Cambridge, Mass.</i>
Minott Eugene Porter, B.S., 1893, Civil Engineering.	<i>Washington, D. C.</i>
Lewis Severance, A.B., 1892, French; English; History.	<i>St. Johns.</i>
Lillie Maria Shaw, A.B., 1884, Greek; German; Botany.	<i>Saginaw, East Side.</i>
Louis Henry Shoemaker, B.S., 1889, Civil Engineering.	<i>Paterson, N. J.</i>

Katharine Eliza Sumner, Ph.B., 1891,
English Literature; History; Pedagogy.

Toledo, O.

Allen Sisson Whitney, A.B., 1885,
Pedagogy; German; American History.

Saginaw, East Side.

UNDERGRADUATES.*

NAME.	DEGREE.	CREDIT.	RESIDENCE.
Mary Ella Abbey,	A.B.	30	<i>Lowell.</i>
Inez Louise Abbott,	A.B.	94	<i>Holt.</i>
Frank DeForest Adams,	A.B.	93	<i>Marshall.</i>
Mary Joice Adams,	Ph.B.	48	<i>Normal, Ill.</i>
Romanzo Colfax Adams,			<i>Bloomington, Wis.</i>
Charles Webber Aikins,	B.L.	38	<i>Pella, Ia.</i>
Robert Sumner Albee,	B.S.	72	<i>Oshkosh, Wis.</i>
William Aldrich,			<i>Rosemond, Ill.</i>
Kirkland Barker Alexander,	B.S. (Mech. E.)	58	<i>Grosse Isle.</i>
George Henry Allen,	A.B.		<i>Grand Rapids.</i>
Susie Helen Allen,	Ph.B.	67	<i>Grand Rapids.</i>
Sadie Maria Alley,	Ph.B.	106	<i>Detroit.</i>
Bayard Hoyt Ames,	A.B.	42	<i>Highlands, Col.</i>
Mary Irene Amidon,	B.L.		<i>Cedar Rapids, Ia.</i>
Gustave Albin Anderson,	B.S.	28	<i>Beacon.</i>
Hannah Matilda Anderson,	A.B.	16	<i>Escanaba.</i>
Louis Warner Anderson, B.S., <i>Albion College,</i>	B.S. (C.E.)	60	<i>Albion.</i>
Mary Josephine Anderson,			<i>Battle Creek.</i>
Rosetta Anderson,	A.B.	87	<i>Ann Arbor.</i>
George Louis Andrews,	B.S. (E.E.)		<i>Paw Paw.</i>
William Holmes Andrews,	B.S. (Chem.)	122	<i>Canandaigua, N. Y.</i>
Charles Sumner Andrus,	B.L.		<i>Hastings.</i>
Julia Morehouse Angell,	Ph.B.	46	<i>Chicago, Ill.</i>
Frederic Everart Arnold,	B.S.	10	<i>Ann Arbor.</i>
Frederic Niles Arnold, Jr.,			<i>Dayton, O.</i>
Kate Oretta Arnold,	A.B.	62	<i>Ypsilanti.</i>
Frederick Stiles Atwood,	Ph.B.	22	<i>Saginaw, East Side.</i>
Benjamin Miller Austin,			<i>Kalamazoo.</i>

* The abbreviations in the column headed DEGREE indicate the degree for which the student is studying. Where no abbreviation is given, the student is pursuing miscellaneous studies without being registered as a candidate for a degree. The figures in the column headed CREDIT indicate the number of hours of work taken by candidates for degrees prior to the beginning of the current academic year, 1894-95, and completed without conditions, or credited to them on advanced standing. By an hour of work is meant the equivalent of one exercise a week for one semester. Compare page 100.

Lena C. Austin,	B.S.	48	<i>Ann Arbor.</i>
Robert Oliver Austin,	B.L.	101	<i>Morrice.</i>
Walter Merville Austin,	B.S. (E.E.)	101	<i>Ann Arbor.</i>
Frederick Clark Averill,	B.S.		<i>Perrysburg, O.</i>
Harriet Averill,	B.S. (Bio.)		<i>Cedar Rapids, Ia.</i>
Lois LeBaron Avery,	B.L.		<i>Saline.</i>
Helen May Babcock,			<i>Manistee.</i>
Stephen Cone Babcock,	B.L.	33	<i>Buffalo, N. Y.</i>
Theodore Bacmeister, Jr.,	A.B.		<i>Toulon, Ill.</i>
Georgia Farrand Bacon,			<i>Pontiac.</i>
Winnifred Holland Bacon,	B.S.	35	<i>Saginaw, East Side.</i>
Annie Louise Bacorn,	B.L.	72	<i>Ann Arbor.</i>
Samuel Herman Baer,	B.S. (Chem.)	72	<i>Fort Smith, Ark.</i>
Charles Wiley Baggott,	B.S. (Mech. E.)	33	<i>Ludington.</i>
Anna Bailey,	A.B.	72	<i>Battle Creek.</i>
Benjamin Franklin Bailey,	B.S.		<i>Detroit.</i>
Naomi Ashley Bailey,	A.B.		<i>Port Huron.</i>
Vernon Bailey,			<i>Elk River, Minn.</i>
Charles Baird,	A.B.	102	<i>Chicago, Ill.</i>
James Baird,	B.S. (E.E.)	62	<i>Chicago, Ill.</i>
Anna Mary Baker,			<i>Terre Haute, Ind.</i>
Edward Burgoyne Baker,			
LL.B.,	A.B.		<i>Leavenworth, Kan.</i>
Fred Louis Baker,	B.S. (Mech. E.)		<i>Hillsdale.</i>
George John Baker,			<i>Detroit.</i>
William Porter Baker,	B.S. (E.E.)		<i>Woodville, O.</i>
Eugene Norrell Baldwin,	B.S. (E.E.)	29	<i>Jackson, Miss.</i>
Jeannette Isadore Baldwin,	A.B.	42	<i>Battle Creek.</i>
Lucene Rose Baldwin,	B.L.	43	<i>Norwalk, O.</i>
Edna Lenore Ballard,	B.L.	51	<i>Ann Arbor.</i>
Frederick Charles Ballard,	A.B.	27	<i>North Branch.</i>
Grace Bammel,			<i>Bay City.</i>
Charles Edwin Bancker,	A.B.	49	<i>Jackson.</i>
Ida Leora Barber,	A.B.	20	<i>Grand Rapids.</i>
George Russell Barker,			<i>Flint.</i>
Nathan Barlow,	Ph.B.	31	<i>Coldwater.</i>
Florence Emma Barnard,	A.B.	91	<i>Saginaw, West Side.</i>
Mortimer Grant Barnes,	B.S. (C.E.)	88	<i>Loretto, Neb.</i>
Abby Louise Barney,	Ph.B.	79	<i>Ann Arbor.</i>
Bertha Carmelia Barney,	B.L.	55	<i>Ann Arbor.</i>
Frederic Crossgrove Barr,	B.S. (E.E.)		<i>Ann Arbor.</i>
Margaret Rosanna Barrette,			<i>Davenport, Ia.</i>
Edwin Southworth Bartlett,			<i>Brockton, Mass.</i>

Henry Shepard Barton,	B.S. (C.E.)	57	<i>Louisville, Ky.</i>
Caroline Bary,	B.L.	29	<i>Detroit.</i>
Mark Bary,	B.S. (E.E.)	31	<i>Detroit.</i>
Elmer Sereno Bassett,	B.S.	25	<i>Ann Arbor.</i>
Estelle Batchelder,	Ph.B.	15	<i>Grass Lake.</i>
Mary Luella Batchelder	B.L.	63	<i>Warrensburg, Ill.</i>
Edgar Bates,			<i>Bear Lake.</i>
Nettie Hopkins Bates,			<i>Eagle.</i>
William Guy Bauer,	B.S.	100	<i>Hastings.</i>
Rush William Baughman,			<i>Leipsic, O.</i>
Don Alexander Baxter,	B.L.	20	<i>Lima, O.</i>
Ellen Phelps Beach,			<i>Battle Creek.</i>
Frank Ambrose Beach,	B.L.	98	<i>Medina, N. Y.</i>
Frederick Paul Beach,	B.S. (E.E.)	28	<i>Lexington.</i>
John Watson Beach,	A.B.	58	<i>Lexington.</i>
Emma Belle Beals,	B.L.		<i>Grand Blanc.</i>
Lester Hayes Beals,	A.B.	86	<i>Grand Blanc.</i>
Harriet Elizabeth Beard,	Ph.B.		<i>Detroit.</i>
Carl Richard Beardsley,	B.S. (C.E.)	11	<i>Elkhart, Ind.</i>
William Thornton Beck,			<i>Holton, Kan.</i>
Ruth Gilbert Beckwith,			<i>Ann Arbor.</i>
Ira Alanson Beddow,	Ph.B.	117	<i>Beddow.</i>
• Grace Griffith Begle,			<i>Detroit.</i>
Clara Rebekah Bell,	A.B.		<i>Ann Arbor.</i>
Winifred Beman,	A.B.		<i>Ann Arbor.</i>
Edwin Jenison Bement,	Ph.B.	26	<i>Lansing.</i>
Howard Bement,	Ph.B.	64	<i>Lansing.</i>
John Adam Bendinger,	B.S. (Chem.)	94	<i>Cincinnati, O.</i>
George Welcome Benham,	B.S. (C.E.)	14	<i>Detroit.</i>
Elsie Gertrude Benjamin,			<i>Ann Arbor.</i>
Percy Whitman Benjamin,	B.L.		<i>Ann Arbor.</i>
Clare A. Bennett,	B.S. (C.E.)	27	<i>Fenton.</i>
Elise Chenault Bennett,	Ph.B.	93	<i>Richmond, Ky.</i>
Helen Sara Bennett,			<i>Richmond, Ky.</i>
Mary Ella Bennett,	Ph.B.	102	<i>Ann Arbor.</i>
William Hoyt Bennett,	B.L.	61	<i>Chicago, Ill.</i>
Mattie Ellen Bettes,			<i>Grand Rapids.</i>
Laura Helen Bevans,	Ph.B.		<i>Englewood, Ill.</i>
Alice Biester,	A.B.	97	<i>Chicago, Ill.</i>
Will Ambrose Biggs,	B.S. (Mech. E.)	8	<i>Ann Arbor.</i>
Lilian Marion Bigham,	A.B.		<i>Northampton, Mass.</i>
Elton Pope Billings,	A.B.	66	<i>Grand Rapids.</i>
William Gray Billings,	B.L.	97	<i>Davison.</i>

Harriet Elizabeth Bingham,	B.L.	62	<i>Dubuque, Ia.</i>
Emma Myrtella Bird,	Ph.B.	15	<i>Birmingham.</i>
Arthur Woodward Birdsall,	B.S. (E.E.)	38	<i>Lapeer.</i>
Bertram Joseph Bishop,			<i>Wyandotte.</i>
August Blaess,	B.S. (C.E.)	96	<i>Ann Arbor.</i>
Bert Norwood Blakeslee,	B.S. (C.E.)	8	<i>Birmingham.</i>
Irene Martha Blanchard,	A.B.	30	<i>Minonk, Ill.</i>
Edmond Block,	A.B.	104	<i>Chattanooga, Tenn.</i>
Arthur Collier Bloomfield,	A.B.	106	<i>Jackson.</i>
Mary Putnam Blount,	B.S. (Bio.)	94	<i>Byron, Ill.</i>
Achsa Margarette Blunt,	B.L.	14	<i>Ann Arbor.</i>
Henry William Charles Bodecker,	B.S.	69	<i>New York, N. Y.</i>
Harry Edward Bodman,	Ph.B.	71	<i>Toledo, O.</i>
Helen Margaret Bogardus,	B.L.	20	<i>Saginaw, East Side.</i>
Ivaleta Boice,	Ph.B.	29	<i>Lansing.</i>
Cecile Adele Bond,			<i>Ann Arbor.</i>
Lesta Edith Bookwalter,			<i>Greenville, O.</i>
Frederick King Boomhower,	B.S. (E.E.)		<i>Chateaugay, N. Y.</i>
Cheshire Lawton Boone,	B.S. (E.E.)	10	<i>Ypsilanti.</i>
James William Booth,	A.B.		<i>Detroit.</i>
Fred Harper Borchardt,	B.L.	25	<i>Chicago, Ill.</i>
Frederick Chittenden Borst,	B.S. (Mech. E.)		<i>Denver, Col.</i>
William Chalmers Borst,	B.S. (E.E.)	79	<i>Denver, Col.</i>
Mabel Bosworth,	A.B.	36	<i>Ann Arbor.</i>
Eva Bothe,	B.L.	29	<i>West Bay City.</i>
Clara Louisa Botsford,	B.L.	30	<i>Kalamazoo.</i>
Grace Mabel Botsford,	B.L.	32	<i>Detroit.</i>
Norman Trenholme Bourland,	B.L.	88	<i>Peoria, Ill.</i>
Philip Daggett Bourland,	B.S. (Chem.)	108	<i>Peoria, Ill.</i>
Robert Collyer Bourland,	A.B.	33	<i>Peoria, Ill.</i>
Alice May Boutell,	Ph.B.	9	<i>Detroit.</i>
Eva May Bowen,	A.B.	46	<i>Marathon, O.</i>
Wilbur Pardon Bowen,	B.S.	72	<i>Chelsea.</i>
Harold Martin Bowman,	B.L.	8	<i>Des Moines, Ia.</i>
James Roy Boyd,			<i>LaPorte, Ind.</i>
Elihu Harry Boynton,	B.S. (E.E.)	17	<i>St. Clair.</i>
Gertrude Adele Boynton,			<i>Grand Rapids.</i>
Fred Ellsworth Bradfield,	B.S. (Bio.)	38	<i>Grand Rapids.</i>
Bertha Theresa Bradley,	Ph.B.	46	<i>Grand Rapids.</i>
Bert John Bradner,	B.L.		<i>Northville.</i>
Thomas Alfred Bragg,	B.S. (E.E.)	3	<i>Grand Rapids.</i>
Esther Braley,	A.B.	1	<i>Ann Arbor.</i>

Clarence Henry Brand,	B.S.		<i>Saginaw, West Side.</i>
Louise Marks Breitenbach,	Ph.B.	32	<i>Detroit.</i>
Joseph Brennemann, Jr.,	Ph.B.	112	<i>Peru, Ill.</i>
Mary Arvilla Brewer,	A.B.		<i>Romeo.</i>
Ina Gould Briggs,	Ph.B.	29	<i>Battle Creek.</i>
Frank Briscoe,	A.B.	93	<i>Detroit.</i>
Deward Augustus Britten,	B.S. (E.E.)	43	<i>Ann Arbor.</i>
John Birt Brooks,	A.B.	104	<i>Ann Arbor.</i>
Laura Becker Broomall,			<i>Cheyney, Pa.</i>
Anna Frances Bross,			<i>Dexter.</i>
Alice Brown,	A.B.	61	<i>Grand Rapids.</i>
Charles LeRoy Brown,			<i>Dixon, Ill.</i>
Gertrude Margaret Brown,	B.S.		<i>West Bay City.</i>
Harriette Alvira Brown,			<i>Marine City.</i>
Herman Elisha Brown,			<i>Kinderhook.</i>
Irving J. Brown,	B.S. (E.E.)	8	<i>Niles.</i>
James Lehi Brown,			<i>Pleasant Grove, Utah.</i>
Roy Wilcox Brown,	B.S. (E.E.)		<i>Geneseo, Ill.</i>
Wallace Everett Brown,	B.L.		<i>Detroit.</i>
†Chester Groves Browne,			<i>Anderson, Ind.</i>
Sara Spencer Browne,	Ph.B.	44	<i>Ann Arbor.</i>
Edgar Ewell Brownson,	B.S. (E.E.)	32	<i>Rochester.</i>
Edward Adolph Bruegel,			<i>Ann Arbor.</i>
William Gordon Bryant,	A.B.	62	<i>Mt. Clemens.</i>
Anna Elizabeth Buck,	A.B.	6	<i>Ann Arbor.</i>
Frank Peyton Buck,	Ph.B.		<i>St. Johns.</i>
Hambden Bucl,			<i>Ann Arbor.</i>
Harry Copley Buell,	B.S. (Mech.E.)	80	<i>Ann Arbor.</i>
Ella May Bullard,	A.B.	95	<i>Geneva, N. Y.</i>
Delia Edith Bullock,	Ph.B.		<i>Howell.</i>
Madge Genevieve Bunday,	Ph.B.	10	<i>St. Johns.</i>
Frederick Henry Burdick, Jr.,	B.S. (C.E.)	74	<i>Saginaw, East Side.</i>
William Arthur Burdick,	B.L.		<i>Ann Arbor.</i>
Abraham Lincoln Burgan,	B.S. (E.E.)	90	<i>Lake Linden.</i>
Harry Owen Burkert,			<i>Detroit.</i>
Frank Ellsworth Burkhead,			<i>Pottersville.</i>
Ray Haddock Burrell,	B.S.	33	<i>Ann Arbor.</i>
Mary Louise Burridge,			<i>Tecumseh.</i>
Charles William Burrows,	A.B.		<i>Ann Arbor.</i>
Charles Ward Burton,	B.S.	2	<i>Detroit.</i>
Mary Agnes Burton,	Ph.B.	23	<i>Detroit.</i>
Platt Richard Bush,	B.S. (C.E.)	102	<i>Saginaw, East Side.</i>
Harriet Edwina Bushnell,			<i>Detroit.</i>

John Edward Butler,	B.L.		<i>Ludington.</i>
Juliet Morton Butler,	B.S.	53	<i>Ann Arbor.</i>
Orma Fitch Butler,	A.B.	32	<i>Ann Arbor.</i>
Caroline Maria Butterfield,	A.B.	87	<i>Ann Arbor.</i>
Rupert Olin Butterfield,	B.S. (Bio.)	76	<i>Ann Arbor.</i>
Ruth Wales Butterworth,	Ph.B.		<i>Cincinnati, O.</i>
Frederick Magnus Butzel,	Ph.B.	30	<i>Detroit.</i>
John Winford Byers,	B.S. (E.E.)	12	<i>Grand Rapids.</i>
John Fletcher Byington,	A.B.	91	<i>Battle Creek.</i>
Agnes Ophelia Cady,			<i>Ann Arbor.</i>
Eliza Begole Cady,			<i>Ann Arbor.</i>
Walter John Cahill,	B.S. (C.E.)	55	<i>Chicago, Ill.</i>
Minnie Baldwin Caldwell,			<i>Ann Arbor.</i>
William Anderson Caldwell, Jr.,	B.S. (E.E.)	74	<i>St. Louis, Mo.</i>
William Richard Caldwell,	B.S. (C.E.)	91	<i>Traverse City.</i>
John Cameron,	B.S. (C.E.)		<i>Lake Linden.</i>
Mabel Clair Cameron,			<i>Marysville, O.</i>
Elizabeth Francis Camp,			<i>Cleveland, O.</i>
Mary F. Camp,	A.B.	62	<i>Ypsilanti.</i>
Alexander Macomb Campau,	B.L.	13	<i>Detroit.</i>
Melancthon Woolsey Campau,	B.S. (Mech.E.)	55	<i>Detroit.</i>
Albert Alexis Campbell,			<i>Leiter's Ford, Ind.</i>
Archibald Campbell,	Ph.B.	68	<i>Manhattan, Ill.</i>
Charles Cisco Campbell,	Ph.B.	75	<i>Leiter's Ford, Ind.</i>
Harry Noel Campbell,	B.S. (C.E.)		<i>Lacon, Ill.</i>
Frederick Greene Candee,	B.S. (E.E.)		<i>Chicago, Ill.</i>
Roy Bishop Canfield,	A.B.	32	<i>Ann Arbor.</i>
Edward Wyatt Cannady,	B.S.	53	<i>Mascoutah, Ill.</i>
Edward Francis Carey,	Ph.B.		<i>Princeton, Ill.</i>
Elizabeth Mary Cargill,			<i>Grand Rapids.</i>
Francis Xavier Carmody,			<i>Waterliet.</i>
†Claude Silas Carney,	B.L.	14	<i>Schoolcraft.</i>
Charles Knapp Carpenter,	Ph.B.	91	<i>Baileyville, Ill.</i>
Laura Augusta Carpenter,	A.B.	27	<i>Ann Arbor.</i>
William Ransom Carpenter,	Ph.B.	25	<i>Iron Mountain.</i>
Iris Carr,	B.L.	107	<i>Ann Arbor.</i>
George Edward Carroll,	B.S.	94	<i>Ludington.</i>
Leolian Carter,			<i>St. Joseph, Mo.</i>
Charles Ernst Cartier,	B.L.		<i>Ludington.</i>
Ada Malvina Cartwright,	B.L.	62	<i>Oregon, Ill.</i>
†John Scott Cash,	B.S. (C.E.)		<i>Duluth, Minn.</i>

Edward Burns Caulkins,	B.L.		<i>Detroit.</i>
Charles Joshua Cella,	B.L.		<i>Chicago, Ill.</i>
Edith Tryon Chamberlain,			<i>Elkhart, Ind.</i>
Edmund Claude Champion,	B.S. (Chem.)		<i>Three Rivers.</i>
Alice Chandler,			<i>Chicago, Ill.</i>
George Moseley Chandler,	B.S. (E.E.)	33	<i>Chicago, Ill.</i>
Samuel Blakeslee Chapel,	B.L.		<i>South Grand Blanc.</i>
Artena Mary Chapin,	A.B.	58	<i>Fort Wayne, Ind.</i>
Martha Jane Chappell,			<i>Berlin.</i>
James Corson Chase,	B.S. (E.E.)		<i>Chicago, Ill.</i>
Taiyin Cheo,			<i>Kiukiang, China.</i>
Wallace Wiley Chickering,	B.S. (Mech.E.)	98	<i>Ann Arbor.</i>
Elaine Childs,	B.L.	77	<i>Washington, D. C.</i>
Lelia Merrilla Childs,	B.S.		<i>Ann Arbor.</i>
Charles Frisbie Chubb,	Ph.B.	31	<i>Coldwater.</i>
Francis Le Grande Church,	B.S.	21	<i>Holly.</i>
Addison Clark, Jr. A.B., <i>Add A.B.</i>			
<i>Ran University,</i>		81	<i>Thorp Spring, Tex.</i>
Clarence Day Clark,	Ph.B.	68	<i>Northville.</i>
Helen Anderson Clark,			<i>Grand Rapids.</i>
Martha Canfield Clark,	B.L.		<i>Ann Arbor.</i>
Julia Blanche Clifford,			<i>Minneapolis, Minn.</i>
George Frank Clukey,	B.L.	21	<i>Mt. Clemens.</i>
Philip Russell Coats,	B.S. (E.E.)	77	<i>Saginaw, East Side.</i>
Benjamin Clark Cocker,	Ph.B.		<i>Adrian.</i>
Howard Earle Coffin,	B.S. (E.E.)	36	<i>Ann Arbor.</i>
Burnham Colburn,	B.S. (C.E.)	67	<i>Detroit.</i>
Bessie Maud Colby,	B.L.	56	<i>Adamsville.</i>
Pearl Leone Colby,	B.S.	100	<i>Ann Arbor.</i>
Harrie Newton Cole,	A.B.	15	<i>Grand Rapids.</i>
Harry Arthur Cole,	B.L.	64	<i>Hinsdale, Ill.</i>
Lillian Felch Cole,	Ph.B.		<i>Ann Arbor.</i>
Oscar Phipps Cole,	A.B.	68	<i>Berlin, N. H.</i>
Rufus Ivory Cole,	B.S.	72	<i>Peru, Ill.</i>
Simon Peter Cole,			<i>Ann Arbor.</i>
Frederick William Backus			<i>•</i>
Coleman,	A.B.	71	<i>Detroit.</i>
Harry Coleman,			<i>St. Johns.</i>
Ralph Collamore,	B.S. (Mech. E.)	31	<i>Toledo, O.</i>
Emmons Collins,	B.S. (E.E.)	36	<i>Western Springs, Ill.</i>
Grace Louise Collins,	Ph.B.	68	<i>Peotone, Ill.</i>
Mabel Colton,	A.B.	89	<i>Toledo, O.</i>
Harold Orange Comstock,	B.S. (C.E.)	34	<i>Owosso.</i>

John Chassell Condon,	B.S. (E.E.)	76	<i>Ann Arbor.</i>
Merritt S. Conner,	B.S. (E.E.)	71	<i>Paw Paw.</i>
Mary Connor,	Ph.B.		<i>Ann Arbor.</i>
Lettie Lenore Conover,	B.S. (Bio.)	94	<i>Coldwater.</i>
Charles Henry Conrad,	B.L.	106	<i>Chicago, Ill.</i>
Charles Goldsmith Cook,	A.B.	64	<i>Detroit.</i>
Charles Olney Cook,	B.S. (Mech. E.)	31	<i>Detroit.</i>
Frances Clare Cook,	B.L.	50	<i>Corunna.</i>
Samuel Richard Cook,			<i>Ann Arbor.</i>
Jane Elizabeth Cooke,			<i>Monroe.</i>
Spencer Pearson Cooke,			<i>Monroe.</i>
Anna Elizabeth Cool,	Ph.B.	64	<i>Decatur, Ill.</i>
Maud Irene Cooley,	A.B.	68	<i>Canandaigua, N. Y.</i>
Edward Bliss Coolidge, Jr.,	Ph.B.	8	<i>Detroit.</i>
Lelia May Coolidge,			<i>Winnebago, Ill.</i>
Sollace Burroughs Coolidge,	B.S. (E.E.)		<i>Detroit.</i>
Byron Henry Coon,	Ph.B.	30	<i>Ann Arbor.</i>
Rose Mary Cooper,			<i>St. Louis, Mo.</i>
John Corbin, Jr.,	Ph.B.	115	<i>New Harmony, Ind.</i>
Harold Dunbar Corbusier,	B.S. (C.E.)		<i>Ann Arbor.</i>
Paul Cornell, Jr.,			<i>Chicago, Ill.</i>
William Clayton Coryell,	B.S. (Mech. E.)	58	<i>Grand Rapids.</i>
George William Cottrell,	B.S.		<i>Detroit.</i>
Leonard Porter Coulter,	B.S. (E.E.)		<i>Danville, Ill.</i>
Charles Herbert Covell,	A.B.	96	<i>Napoleon.</i>
John Shepherd Cowgill,	B.S. (E.E.)		<i>Three Rivers.</i>
Solomon Macy Cowgill,	B.S. (Chem.)	72	<i>Summitville, Ind.</i>
John Theodore Cowles,			<i>St. Joseph.</i>
Granville Malcom Cox,	B.S. (Mech. E.)		<i>Chicago, Ill.</i>
Howard Malcom Cox,	B.S. (Mech. E.)	104	<i>Chicago, Ill.</i>
Winifred Rose Craine,	B.L.	100	<i>Detroit.</i>
Louis Convers Cramton,	Ph.B.		<i>Lapeer.</i>
Henry Shepherd Crane,	A.B.	82	<i>Detroit.</i>
Adriel Alanson Crawford,	Ph.B.		<i>Owosso.</i>
Luella Creed,	B.L.	53	<i>Centerville.</i>
John Robert Crouse,	A.B.	21	<i>Fostoria, O.</i>
Arthur Gerrish Cummer,	B.S. (Mech. E.)	58	<i>Cadillac.</i>
Waldo Emerson Cummer,	B.L.	62	<i>Cadillac.</i>
Harry White Cummings,	B.L.	28	<i>Toledo, O.</i>
Robert Smith Cummings,	B.L.		<i>Toledo, O.</i>
Walter Galpin Curtis,	B.S.		<i>Salem.</i>
Walter Turney Curtis,	B.S. (C.E.)		<i>Detroit.</i>
Clara Adell Curtiss,	A.B.	67	<i>Lyons, N. Y.</i>

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Fred Richard Cutcheon,	B.S. (E.E.)	74	<i>Grand Rapids.</i>
Karl Gustave Dahlstrom,	B.L.	38	<i>Ishpeming.</i>
Arthur Dalley,			<i>Summit, Utah.</i>
George Alfred Damon,	B.S. (E.E.)	100	<i>Ypsilanti.</i>
Herbert Allan Dancer,	B.L.	95	<i>Chelsea.</i>
Effie Danforth,	Ph.B.	51	<i>Ann Arbor.</i>
Horace Warren Danforth,	B.L.	32	<i>Denver, Col.</i>
Robert Southgate Danforth,	A.B.		<i>Ann Arbor.</i>
Francis Potter Daniels,	A.B.	99	<i>Ionia.</i>
Henry Winter Daniels,	B.S. (C.E.)		<i>Onsted.</i>
Josephine Daniels,	A.B.		<i>Gregory.</i>
Maude May Darko,	Ph.B.	7	<i>Ludington.</i>
Samuel Mills Darling,			<i>Grand Rapids.</i>
Albertus Darnell,	Ph.B.	6	<i>Hinckley, Ill.</i>
Amaziah Donald Davis,	A.B.	59	<i>Grand Rapids.</i>
Calvin Clin Davis,	A.B.	92	<i>Macomb.</i>
Charles Bartlett Davis,	A.B.		<i>Detroit.</i>
Charles Pugh Davis,	B.L.	57	<i>Lewis, Ia.</i>
Edna Daisy Day,	B.L.	60	<i>East Orange, N. J.</i>
Francis Spencer Dayton,	B.L.	29	<i>Chicago, Ill.</i>
Howard S. Dean,	B.L.		<i>Detroit.</i>
Robert Louis Dean,	B.L.	35	<i>Hinsdale, Ill.</i>
Walter Minturn Dean,	B.L.		<i>Chicago, Ill.</i>
Annie Louise Decker,	Ph.B.	5	<i>Battle Creek.</i>
Edward Harris Decker,	A.B.	27	<i>Battle Creek.</i>
William Bellows Decker,	A.B.	69	<i>Battle Creek.</i>
Rose Demmon,	A.B.	54	<i>Ann Arbor.</i>
Edward Paul de Pont,			<i>Ann Arbor.</i>
Anna Laurie Derr,	B.L.	15	<i>Ann Arbor.</i>
Homer Munro Derr,	B.S. (Mech. E.)	12	<i>Ann Arbor.</i>
Lewis Nelson DeVore,	B.S. (C.E.)	47	<i>West Middleburg, O.</i>
Edith May Dewey,			<i>Detroit.</i>
Will Earles DeWitt,	B.S. (E.E.)	45	<i>Saginaw, West Side.</i>
Isaac DeYoung,	B.S. (C.E.)	17	<i>Chicago, Ill.</i>
Bartlett Chase Dickinson,	B.S. (C.E.)	8	<i>Kalamazoo.</i>
Julian George Dickinson,	Ph.B.		<i>Detroit.</i>
Raymond William Dikeman,	B.S.		<i>Three Rivers.</i>
Charlotte Dilworth,			<i>Bozeman, Mon.</i>
Fred Leslie Divine,	B.L.		<i>Sycamore, Ill.</i>
Gertrude Adelaide Divine,	B.L.	54	<i>Ann Arbor.</i>
Mcroe Fred Dobbin,			<i>Gallup, Ky.</i>
Belle Donaldson,	A.B.	106	<i>West Bay City.</i>
Nina May Doty,	Ph.B.	97	<i>Ann Arbor.</i>

Helen Louise Douglas,	Ph.B.	62	<i>Ann Arbor.</i>
Margaret Alice Douglas,	B.L.	10	<i>Ann Arbor.</i>
Charles Jacob Dovel,	Ph.B.		<i>Manistee.</i>
Myron LaFayette Downs,	A.B.	88	<i>Chicago, Ill.</i>
Emil Drefs,			<i>Ann Arbor.</i>
Wilbert Shepard Drew,	B.S. (Mech.E.)	49	<i>Hillsdale.</i>
Helen Eliza Dryer,	A.B.	68	<i>Fort Wayne, Ind.</i>
Elizabeth Anne Dugdale,			<i>Goshen, Ind.</i>
James Horace Dunbar,	B.S. (C.E.)	105	<i>Bay City.</i>
Miriam Dunbar,	B.S.	101	<i>South Bend, Ind.</i>
Anna Duncan,			<i>Dunbar, Pa.</i>
Anna Stuart Duncan,	B.L.	41	<i>Au Sable.</i>
Charles Henry Duncan,	Ph.B.	104	<i>Ann Arbor.</i>
Helen Dunham,	Ph.B.		<i>West Bay City.</i>
Annie Dunster,	Ph.B.	100	<i>Ann Arbor.</i>
Florence May Durand,	A.B.		<i>Ann Arbor.</i>
Annette Marie Dye,			<i>Ann Arbor.</i>
John Henry Dye,	B.S. (C.E.)	107	<i>Ann Arbor.</i>
Peter William Dykema,	B.L.	102	<i>Grand Rapids.</i>
Lucy Nash Eames,	B.S. (Bio.)	97	<i>Ann Arbor.</i>
Sarah Alice Earl,	B.S.	1	<i>Schoolcraft.</i>
Richard Thomas Eastell,	B.L.		<i>Toledo, O.</i>
Marquis Blaine Eaton,	Ph.B.	32	<i>Lansing.</i>
Fred Albert Eckert,			<i>Romeo.</i>
Charles Morton Eddy,	B.S. (Mech.E.)	83	<i>Toledo, O.</i>
Jay D. Edmonds,	B.S. (Mech.E.)	59	<i>Taylor, Ill.</i>
Mary Margaret Ehrhorn,	Ph.B.	3	<i>Rock Island, Ill.</i>
Sheridan Williams Ehrman,			<i>Decatur, Ill.</i>
John Adrian Elenbaas,			<i>Holland.</i>
Jeannette Lambie Elliott,			<i>Detroit.</i>
Charles William Ellis,	B.S. (E.E.)	79	<i>Detroit.</i>
Elmer Myron Ellsworth,	B.S. (C.E.)	28	<i>Thornville.</i>
Guy Clifford Emery,	B.L.		<i>Battle Creek.</i>
William Henry Emery,	B.L.		<i>Elmhurst, Ill.</i>
Harold Hunter Emmons,	A.B.	32	<i>Ann Arbor.</i>
Frederick Engelhard,	A.B.	10	<i>Ann Arbor.</i>
Mary Louise Engelhard,			<i>Ann Arbor.</i>
Edward Brind Escott,	B.S.	97	<i>Grand Rapids.</i>
Amos Floyd Everett,	B.S. (C.E.)		<i>Lansing.</i>
Richard Deming Ewing,	B.S. (C.E.)	63	<i>Grand Rapids.</i>
Matilda Louise Fairman,	Ph.B.	61	<i>Chicago, Ill.</i>
Philip Henry Falter,	B.S. (C.E.)	30	<i>Chicago, Ill.</i>
Charles Albert Farnam,	A.B.	52	<i>Sand Lake.</i>

Thaddeus Loomis Farnham,	B.S. (Mech.E.)	27	<i>Green Oak.</i>
Tertia Amelia Farnsworth,	Ph.B.	25	<i>Ann Arbor.</i>
Ralph Farnum,	A.B.		<i>Ann Arbor.</i>
Albert Theodore Farrell,	B.S. (C.E.)	27	<i>Escanaba.</i>
Charles Henry Farrell,	B.S.		<i>Dexter.</i>
Lena Elizabeth Faulds,	A.B.	108	<i>Saginaw, West Side.</i>
Alva Howard Felger,	Ph.B.	103	<i>Geneseo, Ill.</i>
Jesse Lee Felger,	Ph.B.	32	<i>Geneseo, Ill.</i>
Fannie Jessie Felver,	Ph.B.		<i>Batavia, Ill.</i>
Howard Felver,	B.S. (E.E.)	4	<i>Batavia, Ill.</i>
Charles Albert Fennell,	B.L.	28	<i>Kansas City, Mo.</i>
Gustave Herman Ferbert,	Ph.B.	30	<i>Cleveland, O.</i>
Edgar Emmit Ferguson,	B.L.	56	<i>Ypsilanti.</i>
Thomas Henry Ferguson,	B.S. (C.E.)	102	<i>Detroit.</i>
Lucien Allen Ferre,			<i>Moweaqua, Ill.</i>
Occana Ferrey,	B.Ph.	30	<i>Lansing.</i>
Dexter Mason Ferry, Jr.,	A.B.	56	<i>Detroit.</i>
†Freeman Field,	B.S. (C.E.)	19	<i>Detroit.</i>
John Spence Finlay,	B.S. (C.E.)		<i>Marquette.</i>
Adelbert Howard Finney,	Ph.B.	43	<i>Bristolville, O.</i>
Bertha May Fish,	Ph.B.	23	<i>Thornton.</i>
Dora Clementine Fisher,	Ph.B.	20	<i>Ann Arbor.</i>
George Frederic Fisher,	B.S. (E.E.)	28	<i>Ann Arbor.</i>
Orlcana Amanda Fisher,	B.L.	82	<i>Abilene, Kan.</i>
Joseph Baker Fisk, Jr.,			<i>Toledo, O.</i>
Kenneth Chauncey Fitch,	A.B.	103	<i>Joliet, Ill.</i>
John Watson FitzGerald,	B.S. (Mech.E.)	67	<i>Grand Rapids.</i>
Grace Sarah Flagg,	A.B.		<i>Ann Arbor.</i>
James Harmon Flinn,	B.S. (Mech.E.)	45	<i>Detroit.</i>
Mary Eva Foley,	B.L.	99	<i>Milwaukee, Wis.</i>
Grace Foote,	A.B.	10	<i>Ann Arbor.</i>
Archibald Alexander Forshee,	B.L.	28	<i>Dixboro.</i>
Burt Lewis Foster,	B.S. (Mech.E.)	72	<i>Ann Arbor.</i>
Charles Woodworth Foster,	B.L.	112	<i>Lansing.</i>
Frances Alma Foster,	B.L.	40	<i>Detroit.</i>
Walter Eugene Foster,	A.B.		<i>Elgin, Ill.</i>
Leah Isabel Fowler,	B.L.	61	<i>St. Johns.</i>
Robert Myron Fox,	B.S. (C.E.)	6	<i>Ann Arbor.</i>
Mabel Fraine,			<i>Laingsburg.</i>
James Joseph Franc,	Ph.B.	73	<i>Toledo, O.</i>
Talbot Hewitt France,			<i>Denver, Col.</i>
Colman Dudley Frank,	B.L.	42	<i>Toledo, O.</i>
George Ernest Frazer,	A.B.	32	<i>Monroe.</i>

Marian Frazer,	B.S.		<i>Monroe.</i>
Jacob Lincoln Freud,	B.L.	10	<i>Detroit.</i>
Jed Burt Freund,	B.S. (Mech.E.)	14	<i>Butte, Mon.</i>
Raynor Spalding Freund,	B.S.	43	<i>Butte, Mon.</i>
Samuel Friedlander,	B.L.	25	<i>Chicago, Ill.</i>
Walter Carver Fritze,	B.L.	96	<i>Chicago, Ill.</i>
Frank Anton Fucik,	B.S. (Mech.E.)	13	<i>Chicago, Ill.</i>
Maude Ethel Fuller,	A.B.	51	<i>Charlotte.</i>
Frank Everett Furst,	B.L.	19	<i>Freeport, Ill.</i>
Eliza Ellen Fyan,	A.B.	10	<i>Port Huron.</i>
Stuart Eugene Galbraith,	B.L.	73	<i>Pontiac.</i>
Greenleaf Whittier Gale,	B.L.		<i>Oak Park, Ill.</i>
Herbert Alpheus Gallup,	Ph.B.		<i>Norwalk, O.</i>
Henry Bennett Gammon,	A.B.	92	<i>Creston, Ill.</i>
Minnie Julia Gardner,	B.L.	18	<i>Ann Arbor.</i>
Eugene Horace Garnett,	B.L.	117	<i>Chicago, Ill.</i>
Louise Antoinette Gastman,	B.S.		<i>Decatur, Ill.</i>
Herbert Rodgers Gates,	B.S. (E.E.)	24	<i>Chicago, Ill.</i>
Abigail Stuart Gaudern,	Ph.B.	91	<i>Pioneer, O.</i>
Eugene Geismer,	B.L.		<i>Ann Arbor.</i>
Henry Geismer,	B.S. (E.E.)	32	<i>Ann Arbor.</i>
Conrad Georg,	A.B.	75	<i>Ann Arbor.</i>
Fred Scott Gerrish,	B.S. (Mech.E.)	27	<i>Cadillac.</i>
Julia Emma Gettemy,			<i>Moline, Ill.</i>
Henry Thomas Gibbard,			<i>Victor.</i>
Jessie Bertha Gibbes,	B.L.	55	<i>Ann Arbor.</i>
George Herbert Gibson,	B.S.		<i>Northville.</i>
Faith Holt Gilbert,	Ph. B.	67	<i>Detroit.</i>
Melvin Albertus Gilbert,			<i>Bloomington, O.</i>
Mont Gilbert,	B.S. (E.E.)	23	<i>Gibsonburg, O.</i>
Neil Alexander Gilchrist,			<i>Ishpeming.</i>
Harvey Gould Gilkerson,	B.S. (C.E.)	93	<i>Valencia, Kan.</i>
Francis Fair Gillen,	B.S. (C.E.)	1	<i>Grand Haven.</i>
George Francis Gillett,	B.S. (E.E.)	23	<i>Saginaw, West Side.</i>
Charles Robert Gillis,	Ph.B.	94	<i>Ann Arbor.</i>
Gaylord Wilson Gillis,	B.L.	67	<i>Detroit.</i>
Helen Marion Gillis,			<i>Anoka, Minn.</i>
Rollind Irvin Gillmer,	B.L.		<i>Warren, O.</i>
Albert Edward Gilman,	B.L.		<i>Ottawa, Ill.</i>
Lina Kate Gjems,	Ph.B.	52	<i>Willmar, Minn.</i>
William Henry Gleysteen,	A.B.	20	<i>Alton, Ia.</i>
Leon Goldsmith,			<i>Denver, Col.</i>
Harry Leith Goodbread,	B.L.	50	<i>Nevada, O.</i>

Luman Webster Goodenough,	B.S.	57	<i>Ludington.</i>
Marie Louise Goodman,	Ph.B.	99	<i>Westport, Mo.</i>
Louis Janes Goodyear,	Ph.B.	102	<i>Hastings.</i>
Annie Morris Goshen,	B.L.	86	<i>Lafayette Hill, Pa.</i>
Sergius Paul Grace,	B.S. (E.E.)	63	<i>Ann Arbor.</i>
Alice Mary Graham,	A.B.	8	<i>Saginaw, West Side.</i>
Porter Graves,	B.L.	24	<i>Kansas City, Mo.</i>
Charles Henry Gray,	B.L.	99	<i>Chicago, Ill.</i>
Edwin Gray,	A.B.	92	<i>Carthage, Mo.</i>
Charles C. Green,			<i>Battle Creek.</i>
Fred May Green,	B.S. (Mech. E.)	41	<i>Charlevoix.</i>
Mabel Grace Green,	B.S.		<i>Holly.</i>
Albert Emerson Greene,	Ph.B.	98	<i>Ann Arbor.</i>
George Frank Greenleaf,	B.L.	48	<i>Chicago, Ill.</i>
Edna Ernest Grimes,	Ph.B.	106	<i>Elkhart, Ind.</i>
Clarence Edward Groesbeck,	B.S. (E.E.)	5	<i>Grand Rapids.</i>
Boone Gross,	Ph.B.	99	<i>Chicago, Ill.</i>
Theresa Alvina Grube,	B.L.	65	<i>Ann Arbor.</i>
Augustus Ernest Guenther,	B.S. (E.E.)	56	<i>Sandusky, O.</i>
Dwight May Guillotte,	B.S. (Mech. E.)	67	<i>Saginaw, West Side.</i>
Edward Wilson Guitteau,	B.S. (E.E.)	31	<i>Toledo, O.</i>
R. Prosper Gustin,	B.S. (Mech. E.)	125	<i>Bay City.</i>
Norman Honore Hackett,			<i>Detroit.</i>
William Henry Hadley,			<i>Ann Arbor.</i>
George Depue Hadzsits,	A.B.	118	<i>Detroit.</i>
Irma Hadzsits,	B.L.	96	<i>Detroit.</i>
Netta Wilhelmina Haffner,	B.S.	95	<i>Sturgis.</i>
Laura Jane Haggart,			<i>Clinton.</i>
Walter Charles Haight,	B.L.	64	<i>Sycamore, Ill.</i>
George Hall,	B.S. (E.E.)		<i>Owosso.</i>
Harry Lawrence Hall, M.D.,			<i>Ann Arbor.</i>
Omar Israel Hall,	B.S. (Mech. E.)	20	<i>Ann Arbor.</i>
Florence Mabelle Halleck,	Ph.B.	64	<i>Ann Arbor.</i>
James Burt Hamilton,	B.S. (Mech. E.)	24	<i>Saginaw, East Side.</i>
Paul Hamilton,	B.S. (C.E.)	67	<i>Kingston, Ind.</i>
Frank Hamsher,	Ph.B.	93	<i>Decatur, Ill.</i>
Virginia Elisabeth Hance,			<i>Hannibal, Mo.</i>
James Sumner Handy,	A.B.	98	<i>Ann Arbor.</i>
Clarence Robert Hanes,	Ph.B.	1	<i>Schoolcraft.</i>
Frederic Cyril Hannan,	B.S. (C.E.)		<i>Chicago, Ill.</i>
Otto Henry Hans,	Ph.B.		<i>South Bend, Ind.</i>
Hanna Hansen,	B.L.		<i>Elgin, Ill.</i>
Carrie Adelaide Hardy,	B.S.	75	<i>Ypsilanti.</i>

Roy Mitchell Hardy,	A.B.		<i>Waterloo, Ill.</i>
Harriet Ellen Harlan,	A.B.		<i>Grand Rapids.</i>
Viola Jean Harman,			<i>Mansfield, O.</i>
Emily Augustine Harper,	Ph.B.	49	<i>Detroit.</i>
George Roscoe Harper,			<i>Goshen, Ind.</i>
†Edmund Rice Harrington,	Ph.B.	40	<i>Port Huron.</i>
George Herbert Harrington,			<i>Titusville, Pa.</i>
Glenn S. Harrington,	B.L.		<i>Cassopolis.</i>
Harry Eli Harrington,	B.S. (E.E.)	6	<i>Grand Rapids.</i>
Achsah May Harris,			<i>Emporia, Kan.</i>
Archie Lee Harris,	B.S. (C.E.)	15	<i>Orange, Mass.</i>
Bert Scott Harris,	B.L.		<i>Eaton Rapids.</i>
Downey Lamar Harris,	B.S. (C.E.)		<i>Franklin, Ky.</i>
Elizabeth Ann Harris,	B.L.		<i>Vernon.</i>
George DeWitt Harris,	B.S. (C.E.)		<i>Franklin, Ky.</i>
John Wistar Harris,	B.S.		<i>Ann Arbor.</i>
Julian Hartwell Harris,	A.B.		<i>Detroit.</i>
Louise Mather Harris,	Ph.B.	90	<i>Ann Arbor.</i>
Henry Thomas Harrison,	B.S. (E.E.)	28	<i>St. Louis.</i>
William Benson Harrison,	B.S.		<i>Imlay City.</i>
Frederic Harry,	B.L.		<i>Hancock.</i>
Edward William Hart,	B.L.		<i>Elgin, Ill.</i>
Edwin Brett Hart,	B.L.	66	<i>Sandusky, O.</i>
Frances Elvira Hartley,	Ph.B.	93	<i>Baltimore, Md.</i>
William Everett Hartman,	B.S. (Chem.)	27	<i>Chicago, Ill.</i>
Edith Achsah Hartshorn,	B.L.	99	<i>Owosso.</i>
Jennie Mae Harvey,			<i>Anamosa, Ia.</i>
LeRoy Morton Harvey,	B.S. (E.E.)	8	<i>Oak Park, Ill.</i>
Maurice Edward Harvey,	B.L.		<i>Reed City.</i>
Thomas John Hatswell, Jr.,	B.S. (Mech. E.)	62	<i>Saginaw, East Side</i>
Alexander Michael Haubrich,	B.S. (E.E.)	116	<i>Detroit.</i>
Harry French Hawkins,	B.S.		<i>Elgin, Ill.</i>
Richard Wyckoff Hawkins,			
LL.B., Northwestern University,			<i>Highland Park, Ill.</i>
Merritt Mattison Hawxhurst,	A.B.		<i>Detroit.</i>
Ione Haydon	B.L.	65	<i>Decatur.</i>
Forrest S. Hayes,	B.S. (Mech. E.)		<i>Galva, Ill.</i>
Leslie Grant Hayes,	A.B.	52	<i>Ann Arbor.</i>
Nellie Myra Hayes,	B.L.	44	<i>Grand Rapids.</i>
Ralph Waldo Emerson Hayes,	Ph.B.	118	<i>Galva, Ill.</i>
Anna Rose Headsten,			<i>Escanaba.</i>
Henry Thomas Heald,	Ph.B.		<i>Grand Rapids.</i>
Kate Healey,	Ph.B.		<i>Fort Dodge, Ia.</i>

Richard Matthews Heames, B.S. (Mech. E.)			<i>Detroit.</i>
Mary Katharina Heard, Ph. C.,			<i>North East, Pa.</i>
William Albert Heartt, Ph.B.	103		<i>St. Joseph.</i>
Dorcas Hedden,			<i>Charlton, N. Y.</i>
Earl Raye Hedrick, A.B.	62		<i>Ann Arbor.</i>
Fred Heffelbower, A.B.	32		<i>Ann Arbor.</i>
Annie Hegeler, B.L.	31		<i>La Salle, Ill.</i>
Herman Hegeler,			<i>La Salle, Ill.</i>
James Heggie, B.S. (Chem.)	68		<i>Jaliet, Ill.</i>
Harry Helfman, A.B.	10		<i>Detroit.</i>
Joanna King Hempsted, B.L.	63		<i>Detroit.</i>
Elizabeth C. Hench, Ph.B.	87		<i>Curtisle, Pa.</i>
Mary Bartron Henderson,			<i>Petoskey.</i>
William D. Henderson,			<i>Petoskey.</i>
Grace Asenath Hendrickson,			<i>Ann Arbor.</i>
George David Kerr Hendry, B.S.			<i>Ann Arbor.</i>
Frederick William Henninger, B.S. (E.E.)	35		<i>Brooklyn, O.</i>
Harry Patterson Herdman, Ph.B.	17		<i>Zanesville, O.</i>
Walter Dwight Herrick, A.B.			<i>Oak Park, Ill.</i>
Etta Herschberger, A.B.	92		<i>Peoria, Ill.</i>
William Hugh Hess,			<i>Woodstock.</i>
Lina Hesse, Ph.B.	95		<i>Saginaw, East Side.</i>
Turner Paul Hickey, A.B.	70		<i>Lansing.</i>
Josiah Edwin Hickman, B.S. (Bio)	88		<i>Benjamin, Utah.</i>
Annie Louise Hill, A.B.	32		<i>Detroit.</i>
Carl Francis Hill, B.S. (Chem.)	6		<i>Toledo, O.</i>
Eliza M. Hill, B.S.	89		<i>Ann Arbor.</i>
Eva Jane Hill, A.B.	10		<i>Chicago, Ill.</i>
Isadore Leon Hill, A.B.	46		<i>Detroit.</i>
Edwin Smith Hinckley, B.L.	77		<i>Fillmore, Utah.</i>
Bertha Katharine Hine, Ph.B.	98		<i>Bay City.</i>
Mathilde Hine, Ph.B.	47		<i>Bay City.</i>
Emma Mary Hinkley,			<i>Orchard Lake.</i>
Mildred Turner Hinsdale, Ph.B.	89		<i>Ann Arbor.</i>
Clinton Jerome Hixson, B.S. (E.E.)	15		<i>Dupont, O.</i>
Herman Franklin Hoch, Ph.B.	80		<i>Mendon.</i>
John Seldon Hoadley, B.S. (C.E.)	70		<i>Edon, O.</i>
Ida Mabel Hodgdon, B.L.	54		<i>Lyons, Kan.</i>
Harry Eugene Hodge,			<i>Ypsilanti.</i>
Julia Mott Hodge, Ph.B.	37		<i>Auburn, Ind.</i>
Edna Marie Holbrook, B.L.	54		<i>Ann Arbor.</i>
Evans Holbrook, B.L.	39		<i>Onawa, Ia.</i>
James Irving Holcomb, B.L.			<i>Freeport, Ill.</i>

Ninah May Holden,	A.B.	86	<i>Michigan City, Ind.</i>
Jessie Roberta Holderby,			<i>Huntington, W. Va.</i>
Percy Melvin Holdsworth,	B.S. (Mech.E.)	26	<i>Traverse City.</i>
Edward Morton Holland,	A.B.	68	<i>Detroit.</i>
Walter Clarence Holland,	Ph.B.		<i>Lapeer.</i>
Bessie Lee Hopkins,	Ph.B.	94	<i>Lansing.</i>
Fay Mar Hopkins,	A.B.	65	<i>Grand Rapids.</i>
Emma Louise Hopkins,			<i>Peoria, Ill.</i>
Dorsey Reno Hoppe,	B.L.		<i>Chelsea.</i>
Margaretha Elise Catherine Horn, B.S., Kansas State Agricultural Col.,			<i>Manhattan, Kan.</i>
Bryson Dexter Horton,	B.S. (E.E.)	100	<i>Fenton.</i>
Isabella Hosie,	Ph.B.	83	<i>Wayne.</i>
Edward Bishop House,	B.S. (E.E.)	54	<i>Greeley, Col.</i>
Arthur Miller Hovey,	B.L.	64	<i>Tacoma, Wash.</i>
Berton James Howard,	B.S.	26	<i>Ionia.</i>
Minnie Pearl Howell,	Ph.B.	97	<i>Flint.</i>
Euretta Amelia Hoyles,	A.B.	61	<i>Aurora, Ill.</i>
Edwin Delos Hoyt,	B.S. (Mech.E.)	80	<i>Kinderhook.</i>
Hobart Birney Hoyt,	A.B.	75	<i>Grand Rapids.</i>
Abigail Hubbard,	Ph.B.	28	<i>Ashtabula, O.</i>
Leonidas Hubbard,			<i>Waldron.</i>
Arthur Scott Hudson,	A.B.	8	<i>Alpena.</i>
Edwin Adolphus Hughes,	B.S. (E.E.)	14	<i>Elkhart, Ind.</i>
William Ward Hughes,			<i>Chicago, Ill.</i>
Harriett Hull,	Ph.B.		<i>Lansing.</i>
William Clark Hull,			<i>Ann Arbor.</i>
John Hulst,	B.S. (Mech.E.)	94	<i>Grand Rapids.</i>
Edwin Haynes Humphrey,	B.L.	23	<i>Detroit.</i>
Alfred Hatch Hunt,	A.B.	93	<i>Grand Rapids.</i>
Helen Grace Hunter,	B.L.	28	<i>Jackson.</i>
Marion Hunter,	B.L.	54	<i>Ann Arbor.</i>
DeWitt Clinton Huntoon,	B.L.	27	<i>Waterford.</i>
Milton Byron Huntoon,	B.S. (E. E.)	87	<i>Waterford.</i>
Amelia Agnes Huss,	B.L.	14	<i>Ann Arbor.</i>
Willard Hunter Hutchings,	B.S.	85	<i>Leslie.</i>
Albert Knox Roof Hutchin- son,	Ph.B.	26	<i>Ionia.</i>
Bessie Hutchinson,	Ph.B.	18	<i>Ann Arbor.</i>
Loomis Hutchinson,	B.S. (E.E.)	31	<i>Ann Arbor.</i>
Elsie Maud Hutchison,			<i>Sioux Falls, S. Dak.</i>
Fritz Carleton Hyde,	B.S. (Bio.)		<i>Grand Rapids.</i>

Robert Edward Hyde,	Ph.B.	
Robert Wilson Hyde,	A.B.	24
Anita Adella Ibershoff,		
Carl Henry Ibershoff,	B.S.	11
Paul Phelps Ingham,	A.B.	2
Elizabeth Irland,	Ph.B.	6
Frederick Charles Irwin,	B.S.	12
John William Irwin,	B.S. (C.E.)	25
Harriet Eliza Ives,	Ph.B.	6
Arthur Dudley Jackson,	B.S. (C.E.)	
Harrison Clarke Jackson,	B.L.	
Hugh Calvin Jackson,	B.S. (C.E.)	22
Lambert Lincoln Jackson,		
Lottie Aurora Jackson,		
Sydney Perham Jackson,		
Theo T. Jacobs,	B.L.	
Will Edward Janes,	B.S.	
John A. Jarvis,	B.S. (E.E.)	
George Darwin Jennings,	B.L.	
Grace Wheeler Jennings,	A.B.	
Walter Henry Jennings,	B.S. (Mech.E.)	
James Daly Jerome,	B.S. (E.E.)	
Ogden Jewell,	A.B.	
Allie Erastus Johnson,	B.S. (C.E.)	
Burton Branch Johnson,	Ph.B.	
Fred Joseph Johnson,	B.L.	
Quintard Johnson,	B.S.	
Clarence Thomas Johnston,	B.S. (C.E.)	
Lynn Myrton Johnston,	A.B.	
Edith Clemence Jones,	B.L.	
Belle Joslyn,		
Julius Kahn,	B.S. (C.E.)	
Demeter Kalenoff,	B.S.	
Albert Benjamin Kalmbach,	B.S. (Mech.E.)	
Louise Camille Karrer,	B.L.	
Benjamin Franklin Kastl,	B.L.	
Minnie Lillian Kautsky,	A.B.	
William Peter Kavanagh,	B.L.	
John Blaine Keating,	B.S. (M.F.)	
Alfred Sewell Kedzie, A.B.,		
<i>Adrian College,</i>	A.B.	
George Cady Keech,	B.S. (E.E.)	
Hannah Emily Keith,		

Frederick William Keller,			<i>South Bend, Ind.</i>
Helen Adeline Kelley,	Ph.B.	64	<i>Cadillac.</i>
Henry Ralph Kellogg,	B.L.	100	<i>Jackson.</i>
Hugh Braley Kelly,	B.S. (C.E.)	80	<i>Elgin, Ill.</i>
Nell Kempf,	Ph.B.	71	<i>Ann Arbor.</i>
Ellen Ann Kennan,	Ph.B.	68	<i>Modesto, Cal.</i>
Carl Sears Kennedy,	B.S. (C.E.)	23	<i>Rockford, Ill.</i>
Charlotte Elizabeth Kennedy,			<i>Au Sable.</i>
Agnes Monica Kenny,	B.L.	41	<i>Manistee.</i>
Emma Matilda Kesting,			<i>Kansas City, Mo.</i>
Frank Atherton Ketcham,	B.S. (Mech. E.)	11	<i>Detroit.</i>
Wilbur Kettlestrings,	B.L.		<i>Chicago, Ill.</i>
Lucia Kieve,	Ph.B.	87	<i>Marion, Kan.</i>
Carrie Louise Kilbourne,			<i>Lansing.</i>
Edith May Kimball,	Ph.B.	69	<i>Ann Arbor.</i>
James Henry Kimball,	B.L.		<i>Detroit.</i>
Byron Claudius Kimes,	A.B.	95	<i>Ann Arbor.</i>
Annie Dorcas Kimlin,	Ph.B.	30	<i>Quincy, Ill.</i>
Julia Isabel Kimlin,	B.S.	100	<i>Quincy, Ill.</i>
Linus Edwin Kimmel,			<i>Kendallville, Ind.</i>
Horace Williams King,	B.S. (C.E.)	66	<i>Big Rapids.</i>
Hester May Kinne,			<i>Des Moines, Ia.</i>
Marian Edith Kinney,	Ph.B.	9	<i>Mt. Pleasant.</i>
Richard Graham Kirchner,	B.L.	11	<i>Detroit.</i>
Annie Sales Kirtland,	B.L.	51	<i>Gregory.</i>
James Ellsworth Kirtland,	B.L.	16	<i>Gregory.</i>
Horace Kitchel,	B.L.		<i>Coldwater.</i>
Macy Kitchen,	A.B.	28	<i>Saginaw, East Side.</i>
Carlyle Kittredge,	B.S. (E.E.)	42	<i>Ann Arbor.</i>
Caroline Klager,	B.L.		<i>Ann Arbor.</i>
Wilson Klingler,	B.L.	95	<i>Manhattan, Ill.</i>
Gustave Knab,			<i>Armor, N. Y.</i>
Mark Stevens Knapp,	B.S.	98	<i>Fenton.</i>
Thad Johnson Knapp,	Ph.B.		<i>Northville.</i>
Stuart Edwin Knappen,	A.B.		<i>Grand Rapids.</i>
Grace Knight,	Ph.B.	39	<i>Utica.</i>
Harry Valentine Knight,	B.S. (E.E.)	96	<i>Alpena.</i>
Annie Knisely,	B.S.	16	<i>Benton Harbor.</i>
Harry Reuben Kohn,	B.L.	55	<i>Brooklyn, N. Y.</i>
John Albert Kreis, Jr.,	B.S. (Mech. E.)	41	<i>Cincinnati, O.</i>
Louis Alvin Kreis,	B.L.		<i>Cincinnati, O.</i>
Bell Krolik,	Ph.B.	29	<i>Detroit.</i>
Henry William Kurz,	A.B.	24	<i>Monroe.</i>

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Charles Augustus LaFever,	B.L.		<i>Battle Creek.</i>
John Lester Laird,			<i>Newton, Ia.</i>
Grace Lamb,	B.L.	28	<i>Erie, Pa.</i>
Ernest Pasquelle Lamont,	B.L.	33	<i>Saginaw, East Side.</i>
Guy Thompson Lamont,	B.S. (Mech. E.)	73	<i>Bay City.</i>
John Alexander Lamont,	B.S. (C.E.)	14	<i>Detroit.</i>
Matthew Lamont,	B.S. (C.E.)	44	<i>Detroit.</i>
Clarence Haskell Lander,	B.S. (Bio.)	95	<i>Rockford, Ill.</i>
Elmer Bloomfield Lane,	A.B.	32	<i>Fort Wayne, Ind.</i>
Ida Haley Lane, B.L., <i>Adrian</i>			
College,	Ph.B.	100	<i>Adrian.</i>
Fanny Elizabeth Langdon,	B.S. (Bio.)	86	<i>Plymouth, N. H.</i>
Robert Young Larned,	Ph.B.		<i>Lansing.</i>
Eugene LaRowe,	A.B.	70	<i>Webberville.</i>
Bessie Barber Larrabee,	A.B.	65	<i>McGregor, Ia.</i>
Claude Sheldon Larzelere,	B.L.	88	<i>Ann Arbor.</i>
Orlo John Lasenby,	B.L.		<i>Mason.</i>
Kirke Lathrop,	B.L.	44	<i>Detroit.</i>
Antoinette Elizabeth Latson,			<i>Webster.</i>
John Edward Lautner,	B.L.	103	<i>Traverse City.</i>
John Edward Lawless,	B.L.		<i>Des Moines, Ia.</i>
George King Lawton,	A.B.	99	<i>Jackson.</i>
Erie Maude Layton,	A.B.		<i>Bay City.</i>
Mary Foster LeBaron,	Ph.B.		<i>Pontiac.</i>
Thomas Bassnett Lee,	B.S. (C.E.)	74	<i>Coldwater.</i>
Frederick Ewbank Leefe,	B.S. (C.E.)	4	<i>Sault Ste. Marie.</i>
David LeFavour,	B.S. (C.E.)	105	<i>Bay City.</i>
Thad Emory Leland,			<i>Emery.</i>
Walter Schon Lenk,			<i>Toledo, O.</i>
Emma Leo,			<i>Taunton, Mass.</i>
Heman Burr Leonard,	B.S. (E.E.)	117	<i>Detroit.</i>
Clare James LeRoy,	Ph.B.	65	<i>Ann Arbor.</i>
James Alfred LeRoy,	A.B.	52	<i>Ann Arbor.</i>
Otto Edward Lessing,	A.B.	100	<i>Ofterdingen, Wur-</i>
			<i>temberg.</i>
Max Levitt,	A.B.	40	<i>Grand Rapids.</i>
John Gurdon Lewis,	B.S.	47	<i>Oak Park, Ill.</i>
John Sedgwick Lewis, Jr.,	B.S. (E.E.)	69	<i>Jonesville.</i>
Mary Winfred Lewis,			<i>Jackson.</i>
Walter Ferguson Lewis,	B.S.	112	<i>Ann Arbor.</i>
William Adams Lewis,	B.S.	62	<i>Rockford, Ill.</i>
Herman Adolf Liebig,	A.B.	129	<i>Ann Arbor.</i>
Erasmus Christopher Lindley,	B.L.	104	<i>Ann Arbor.</i>

Burton Edward Livingston,	B.L.	13	<i>Grand Rapids.</i>
Dale Livingstone,	A.B.	71	<i>Detroit.</i>
Mabel Gertrude Loder,	B.S.		<i>Port Huron.</i>
Maurice William Loeb,	A.B.	47	<i>Chicago, Ill.</i>
Lindley Grant Long,	Ph.B.	112	<i>Quaker City, O.</i>
Allen Loomis,	B.S. (Mech.E.)	12	<i>Jackson.</i>
Frederic Morris Loomis,	A.B.		<i>Grand Rapids.</i>
Frederique Pierson Loomis,	B.S.		<i>Hannibal, Mo.</i>
Jacob Lingard Lorie,	B.L.	107	<i>Kansas City, Mo.</i>
Charles Olney Loucks,	A.B.	13	<i>Chicago, Ill.</i>
Harry Kimball Loud,	A.B.	28	<i>Au Sable.</i>
William Lewis Love,	B.S. (C.E.)	41	<i>Detroit.</i>
George Bruckner Lowrie,	B.S.		<i>Detroit.</i>
Leonore Loxley,			<i>Lake Charles, La.</i>
Richard Roswell Lyman,	B.S. (C.E.)	100	<i>Tooele, Utah.</i>
Alice Elizabeth Lynch,	B.L.	108	<i>Detroit.</i>
James Leo Lynch,			<i>Wiscon, Minn.</i>
Emma Elizabeth Buys Lynds,	B.L.	71	<i>Ann Arbor.</i>
Alva Eden Lyon,			<i>Ann Arbor.</i>
Elmer Daniel Lyon,	B.S. (Mech.E.)	63	<i>Dexter.</i>
Henry Laurence LeHunte Lyster,	A.B.	90	<i>Detroit.</i>
Theodore Charles Lyster,	Ph.B.	30	<i>Detroit.</i>
Arthur Eugene Maas,	B.S. (E.E.)	18	<i>Negaunee.</i>
Allan Campbell MacDonald,	Ph.B.	118	<i>Black River.</i>
Margaret MacGregor,	Ph.B.	65	<i>Bay City.</i>
Arthur MacGugan, M.D.,			<i>Toronto, Ont.</i>
William Briggs MacHarg,	B.S. (Mech.E.)	62	<i>Chicago, Ill.</i>
Jessie Marion Mack,	Ph.B.		<i>Ann Arbor.</i>
Otis Hardy Maclay,	B.S.	35	<i>Joliet, Ill.</i>
Emma Josephine MacMorran,	Ph.B.	82	<i>Port Huron.</i>
Agnes MacNaughton,	B.L.		<i>Ann Arbor.</i>
Elizabeth MacNeil,			<i>Pontiac.</i>
Mary MacNeil,			<i>Pontiac.</i>
Isabella MacRae,			<i>Central Mine.</i>
Reynolds Cornelius Mahaney,	B.S. (Mech.E.)	14	<i>Owosso.</i>
Lester Elmer Maher,	B.L.	14	<i>Chicago, Ill.</i>
Flora Main,			<i>Mt. Clemens.</i>
Alexander Few Maitland,	B.S. (E.E.)	9	<i>Negaunee.</i>
Nellie Josephine Malarkey,	B.S.	95	<i>Oregon, Ill.</i>
James Halsey Malloy, Jr.,	A.B.	94	<i>Detroit.</i>
Irving Alvin Maltby,	A.B.	27	<i>Bay City.</i>
Hans Mannhardt,	B.S. (Chem.)	77	<i>Chicago, Ill.</i>
Charles Albert Manning,	B.L.	59	<i>Michigan City, Ind.</i>

Mabine Idell Manwarren,	B.L.		<i>Grayling.</i>
Wilfred Hamilton Manwarren,	B.S. (E.E.)	110	<i>Grayling.</i>
Milton Max Markus,	B.L.	34	<i>Chicago, Ill.</i>
Carl Richard Marquardt,	B.S. (Mech.E.)	68	<i>Mt. Clemens.</i>
Helena Marquardt,	B.L.	12	<i>Mt. Clemens.</i>
Edward Potter Marsh,	B.S. (Mech.E.)	15	<i>Oak Park, Ill.</i>
William Jonathan Marsh,	B.S. (E.E.)	4	<i>Pittsford, N. Y.</i>
Charles Edward Marshall,	Ph.B.	107	<i>Fredonia, N. Y.</i>
Edward Hiram Storms Martin,	Ph.B.	34	<i>Chicago, Ill.</i>
William Freeman Martin,	B.S. (Mech. E.)	42	<i>Chicago, Ill.</i>
Agnes May Mason,	B.L.	82	<i>Streator, Ill.</i>
Clyde Shelton Mason,	B.S. (Mech. E.)	70	<i>Owosso.</i>
Edith Roy Mason,			<i>Elgin, Ill.</i>
Ralph Clark Mason,	B.L.	25	<i>Ann Arbor.</i>
Thomas Knight Mathewson,	B.S. (C.E.)	88	<i>Muscatine, Ia.</i>
Stanley Matthews,	B.L.	31	<i>Escanaba.</i>
William Keepers Maxwell,	B.S. (E.E.)		<i>Denison, Tex.</i>
Emma Gennette McAllaster,	B.L.	100	<i>Ann Arbor.</i>
Carl Emil McAlvay,	Ph.B.		<i>Manistee.</i>
Ina McBurney,	B.S.	97	<i>Ann Arbor.</i>
Lewis Wilson McCandless,	A.B.		<i>Prescott, Ariz.</i>
Harry Clarence McCart,	Ph.B.		<i>Fort Worth, Tex.</i>
Nellie Eugenia McCaughan,	B.L.	63	<i>Durango, Mexico.</i>
John Hancock McClellan,	A.B.	39	<i>Lexington, Ky.</i>
Ray James McColl,			<i>Delhi Mills.</i>
Thomas Durand McColl,	B.S. (E.E.)	89	<i>Jackson.</i>
John Brown McCreery,			<i>Detroit.</i>
Thomas Francis McCrickett,	B.S. (Mech. E.)	82	<i>Bay City.</i>
Walter Gill McCullough,	B.L.	82	<i>Troy, O.</i>
Emily Mabel McCune,	A.B.	25	<i>Detroit.</i>
Herbert McCutcheon,	B.L.	24	<i>St. Clair.</i>
Pearl McDonald,	A.B.	14	<i>Ann Arbor.</i>
Katie Elizabeth McFadzean,	Ph.B.	30	<i>Port Huron.</i>
† Archie Rowse McGregor,	B.S. (E.E.)	39	<i>Canton, O.</i>
James Galbraith McHenry,	Ph.B.		<i>Lansing.</i>
George Edward McKana,			<i>Escanaba.</i>
Susie Laura McKee,	A.B.	29	<i>Morrice.</i>
Sara Louise McKenzie,	Ph.B.		<i>Ann Arbor.</i>
William Dexter McKenzie,	A.B.	47	<i>Ann Arbor.</i>
Anna Thorne McLauchlan,	A.B.	25	<i>Chicago, Ill.</i>
Samuel Kenneth McLeod,	B.L.		<i>Detroit.</i>

Lois Azubah McMahon,	Ph.B.	98	<i>Ypsilanti.</i>
Robert Parker McMaster,	Ph.B.		<i>Dowagiac.</i>
George Karr McMullen,	B.S. (E.E.)	63	<i>Grand Rapids.</i>
Grace Ellen McNoah, Ph.C.,	B.L.	59	<i>Ann Arbor.</i>
Clara May McOmber,	Ph.B.	90	<i>Ann Arbor.</i>
Frederick Atwood McVay,	B.S. (E.E.)		<i>Sewickley, Pa.</i>
William Potter McVay,	B.S. (E.E.)		<i>Sewickley, Pa.</i>
Cyrus Edward Mead,			<i>Bay City.</i>
George Franklin Mead,	Ph.B.		<i>Detroit.</i>
William H. Mechem,			<i>Battle Creek.</i>
James Leonard Mee,	B.S.		<i>Ann Arbor.</i>
Frederick Carl Meisel,	B.S.	31	<i>Port Huron.</i>
William Julius Melchers,	B.S. (E.E.)	118	<i>Saginaw, East Side.</i>
Harold Cassius Mendelsohn,	B.S.	8	<i>Ludington.</i>
William Lloyd Mercer,			<i>Vicksburg.</i>
Howard B. Merrick,			<i>Wrightstown, Pa.</i>
Charles Oakes Merrill,	B.S. (E.E.)		<i>Helena, Mon.</i>
Herbert Woodruff Merrill,	B.S. (Mech. E.)	75	<i>Saginaw, East Side.</i>
David Franklin Mertz,	Ph.B.	103	<i>Burnett's Creek, Ind.</i>
William Maurice Mertz,	Ph.B.	66	<i>Burnett's Creek, Ind.</i>
Edna Mettler,	Ph.B.	98	<i>Creston, Ill.</i>
Arthur Metzler,			<i>Rochester, Ind.</i>
Grace Grieve Millard,	Ph.B.	82	<i>Adrian.</i>
Armand Rudolph Miller,	B.S. (Chem.)	36	<i>Kansas City, Mo.</i>
† Arthur Miller,	B.S.		<i>Maryville, Mo.</i>
Frank Edgar Miller,	B.S. (E.E.)	27	<i>Port Huron.</i>
Guy Alonzo Miller,	A.B.		<i>Detroit.</i>
Norman J. Miller,	B.S. (Bio.)	51	<i>Waterloo, Ia.</i>
Genevieve Elizabeth Mills,	A.B.		<i>Ann Arbor.</i>
Harry DeVoe Mills,	B.S. (C.E.)	91	<i>Kalamazoo.</i>
George Arthur Mitchell,			<i>Republic.</i>
Mabel Agnes Mitts,	B.L.	33	<i>Saginaw, East Side.</i>
Georgien Emma Mogford,	Ph.B.	63	<i>Jackson.</i>
William August Mogk,	A.B.	32	<i>Ann Arbor.</i>
Cascen Rich Montague,	B.L.	98	<i>Traverse City.</i>
John Harold Montgomery,	B.S. (E.E.)	34	<i>Ann Arbor.</i>
Vincent Cuthbert Mooney,			<i>Chicago, Ill.</i>
Ida Belle Moore,			<i>Frankfort, Ind.</i>
Lyman Foote Morehouse,	B.S. (E.E.)	37	<i>Big Rapids.</i>
Frederic George Morhous,			<i>Detroit.</i>
Charles John Holland Moritz,	B.S. (E.E.)	42	<i>Saginaw, West Side.</i>
Agnes Morley,	Ph.B.	15	<i>Doil, N. Mex.</i>
William Horace Morley,	Ph.B.	98	<i>Marine City.</i>

Clarence Burton Morrill,			<i>Battle Creek.</i>
Warren Pearl Morrill,	Ph.B.		<i>Benton Harbor.</i>
Earl Herbert Morris,	Ph.B.	39	<i>Bell Brook, O.</i>
Benjamin Carl Morse,	B.L.	41	<i>Alpena.</i>
Charles Hosmer Morse, Jr.,	B.S. (Mech. E.)	106	<i>Chicago, Ill.</i>
William Albine Morse,			<i>Ann Arbor.</i>
Beulah Morsman,			<i>Bellaire.</i>
Carrie Bliss Mowry,	A.B.	23	<i>Saginaw, East Side.</i>
Albert Charles Muma,	B.L.	105	<i>Ann Arbor.</i>
James Orin Murfin,	B.L.	105	<i>Ann Arbor.</i>
Benjamin Lindley Murray,			
Ph.C.,			<i>Ypsilanti.</i>
Alice Nash,			<i>Detroit.</i>
Miron Williams Neal,	A.B.	104	<i>Ann Arbor.</i>
Helen Nelles,	Ph.B.	103	<i>Bay City.</i>
Josie Deane Nelson,			<i>Manistee.</i>
Mathilde Amalie Marguerite			
Neumann,			<i>Ann Arbor.</i>
George Kellogg Newbury,	B.S. (Mech. E.)	11	<i>Jackson.</i>
Frank Miller Newman,	A.B.	47	<i>Sidney, O.</i>
Claude George Newton,	B.S. (C.E.)	8	<i>Ann Arbor.</i>
George Anna Newton,	Ph.B.	17	<i>Maple Rapids.</i>
Guy Dorick Newton,	B.S. (Mech. E.)	67	<i>Ann Arbor.</i>
Lee Luke Newton,	B.S. (C.E.)	71	<i>Lake Linden.</i>
Maidie Newton,	Ph.B.	62	<i>Maple Rapids.</i>
Ralph Eells Newton,	B.S. (E.E.)	31	<i>Saginaw, East Side.</i>
Fanny Theresa Nichols,	B.L.	12	<i>Lansing.</i>
Henry Weed Nichols,	B.S. (Mech.E.)		<i>Ann Arbor.</i>
John Francis Nichols,	B.S. (Mech.E.)	108	<i>Bay City.</i>
Elbert Nicholson,	B.S. (Mech.E.)	109	<i>Kalamazoo.</i>
Charles Chesterfield Nicola,	B.S. (Bio.)	83	<i>Battle Creek.</i>
Harry Thomas Nightingale,	Ph.B.	91	<i>Chicago, Ill.</i>
Edla Niles,	Ph.B.		<i>Ann Arbor.</i>
Charlotte Genevieve Noble,	B.S.	103	<i>Rice Lake, Wis.</i>
James Tainter Noble,	B.S. (E.E.)		<i>Rice Lake, Wis.</i>
Albert Noordewier,	B.S.		<i>Fisher Station.</i>
Lyman Decatur Norris,	Ph.B.		<i>Ann Arbor.</i>
Clifton Ranney Norton,	B.L.	8	<i>Sault Ste. Marie.</i>
Florence Raymond Nowland,			<i>Terre Haute, Ind.</i>
Harry Davidson Nutt,	A.B.	67	<i>Hancock, N. Y.</i>
Arthur Patrick O'Brien,	B.S. (C.E.)	68	<i>Chicago, Ill.</i>
Howard O'Brien,	B.L.	9	<i>Grand Rapids.</i>
Walter Howard O'Brien,	B.S. (E.E.)	71	<i>Chicago, Ill.</i>

William James O'Brien, A.B., <i>Detroit College,</i>	B.S. (Chem.)	35	<i>Detroit.</i>
Schuyler Seager Olds, Jr.,	Ph.B.		<i>Lansing.</i>
Llewellyn William Oliver,	B.S. (C.E.)		<i>Escanaba.</i>
Fay DeVeaux Olmsted,	B.S.	31	<i>Detroit.</i>
Alfred Berthier Olsen, M.D.,	B.S. (Bio.)	111	<i>Battle Creek.</i>
Mahlon Ellsworth Olsen,	A.B.		<i>Battle Creek.</i>
Albert Oscar Olson,	B.L.		<i>Chicago, Ill.</i>
Lauretta May O'Meara,	B.L.	41	<i>Marquette.</i>
Martha Elisabeth Orr,	B.L.	85	<i>Ann Arbor.</i>
Almerene M. Orsborn,	Ph.B.	60	<i>Eaton Rapids.</i>
Marna Ruth Osband,	A.B.	103	<i>Ypsilanti.</i>
Edwin Gale Osborn,	B.S. (E.E.)	37	<i>Owosso.</i>
Frederick Arthur Osborn,	Ph.B.	69	<i>Saginaw, East Side.</i>
Eugene Edward Osenburg,	Ph.B.		<i>Ann Arbor.</i>
Abraham Lincoln Osgood,			<i>Pittsfield, N. H.</i>
Belle Lucinda Otis,	Ph.B.	24	<i>Ann Arbor.</i>
Henry Bailey Otis,	B.S. (E.E.)	61	<i>Chicago, Ill.</i>
Marion Adelia Otis,	Ph.B.	24	<i>Ann Arbor.</i>
Martha Drake Owen,	A.B.	92	<i>DeLand, Fla.</i>
Maibel Oxnard,	A.B.	60	<i>Detroit.</i>
Nina Howarth Paddock,	Ph.B.	50	<i>Chicago, Ill.</i>
Cecil Page,	B.L.		<i>Chicago, Ill.</i>
Marjorie Rebecca Paine,	B.L.	48	<i>Detroit.</i>
†Sylvester Guy Pake,	B.S. (Bio.)		<i>West Duluth, Minn.</i>
Charles Gilbert Palmer,	B.S. (E.E.)	54	<i>Detroit.</i>
Mabel Esther Palmer,	B.L.		<i>Ann Arbor.</i>
Ralph Fleetwood Palmer,	Ph.B.	1	<i>Marquette.</i>
Emma Grace Palmerlee,	Ph.B.	64	<i>Romeo.</i>
Emma Park,			<i>Circleville, O.</i>
Henry Hall Parke,	B.L.		<i>Sycamore, Ill.</i>
James Willis Parker,	A.B.	104	<i>Grand Blanc.</i>
John Marshall Parker,	B.L.	31	<i>Ann Arbor.</i>
Mabel Lillian Parker,	A.B.	8	<i>Chicago, Ill.</i>
Marian Sara Parker,	B.S. (C.E.)	105	<i>Detroit.</i>
Phoebe Parker,	A.B.	86	<i>Norwalk, O.</i>
Lewis Merton Parrott,	B.S. (E.E.)	71	<i>Mt. Clemens.</i>
Carl Copeland Parsons,	A.B.	47	<i>Saginaw, West Side.</i>
Roy Henry Parsons,	B.S. (C.E.)	33	<i>Howell.</i>
Albert Andrew Passolt,	B.S. (E.E.)	109	<i>Saginaw, East Side.</i>
Susan Frances Patterson,	A.B.	20	<i>Detroit.</i>
William Fulton Patterson,	B.S. (E.E.)	45	<i>Holly.</i>
Harry G. Paul,	A.B.	34	<i>Peoria, Ill.</i>

Abigail Pearce,	Ph.B.	115	<i>Ypsilanti.</i>
George Wilcox Peavy,	B.L.	91	<i>Howell.</i>
Leona Bradley Peavy,			<i>Howell.</i>
Anna Hope Peckham,			<i>Ann Arbor.</i>
Mary Wythe Peckham,	Ph.B.		<i>Ann Arbor.</i>
Bessie Chase Peek,			<i>Oregon, Ill.</i>
Joseph Perrien, B.S., <i>Michi-</i>			
<i>gan Agricultural College,</i>	B.S. (M.E.)	52	<i>Detroit.</i>
Ina Christabel Perrin,	A.B.	19	<i>Sf. Johns.</i>
Clarence Herbert Perry,	B.S. (C.E.)	96	<i>Peabody, Kan.</i>
Harlow Stafford Person,	Ph.B.	33	<i>Lansing,</i>
Clayton Amos Peters,	B.S. (Bio.)	87	<i>Alga, Pa.</i>
Mary McCreary Peters,			<i>Alga, Pa.</i>
Alexander K. Petrie,	B.L.		<i>St. Johns.</i>
Frank Henry Petrie,	A.B.	50	<i>Muskegon.</i>
John H. Petrie,	B.L.	22	<i>St. Johns.</i>
Joseph Herman Pettersch,	B.S. (E.E.)	8	<i>Grand Rapids.</i>
Roy Elton Pettitt,	B.L.		<i>Ithaca.</i>
George Pfrshing,	Ph.B.		<i>Chicago, Ill.</i>
Margaret Van Ness Phelps,			<i>Dexter.</i>
Charles Johnson Phinney,	B.S.	28	<i>Ann Arbor.</i>
Charlotte Elizabeth Pickett,	B.S. (Bio.)	65	<i>Ann Arbor.</i>
Julia Pike,	Ph.B.	33	<i>Grand Rapids.</i>
Lewis Clark Plant,			<i>Nunica.</i>
Jean Sarah Pond,			<i>Belfast, Me.</i>
Carlotta Emma Pope,	Ph.B.	95	<i>Allegan.</i>
Klaas Poppen,	A.B.	45	<i>Drenthe.</i>
Jessie Chesebrough Porter,	Ph.B.	59	<i>Marshall.</i>
Myra McPherson Post,	B.L.	98	<i>Detroit.</i>
Emma Caroline Potter,			<i>Hiawatha, Kan.</i>
Grace Trowbridge Potter,	A.B.	12	<i>Detroit.</i>
Nathan S. Potter, Jr.,	B.S. (E.E.)	8	<i>Jackson.</i>
Alice Maude Pound,	Ph.B.	63	<i>Pontiac.</i>
Josephine Perry Powell,	Ph.B.	12	<i>Marquette.</i>
Jesse T. Powers,			<i>Battle Creek.</i>
Anthony Pratt,	A.B.	100	<i>Saginaw, East Side.</i>
George Charles Pratt,	B.S. (E.E.)	24	<i>La Grange, Ill.</i>
Louis Albert Pratt,	B.L.	69	<i>Traverse City.</i>
James Hendry Prentiss,	B.L.	66	<i>Canyon City, Col.</i>
Charles Marvin Preston,	B.S. (F.E.)		<i>Detroit.</i>
Jennie May Price,			<i>Jackson.</i>
Margaret Tripp Price,			<i>Jackson.</i>
Clifford Moses Pritchard,	B.S. (C.E.)	6	<i>Kokomo, Ind.</i>

Otto Pruessman,	B.S. (E.E.)	17	Chicago, Ill.
Katharine Elizabeth Punccheon,	B.L.	67	Philadelphia, Pa.
Nancy Edith Purdum,	B.L.	94	Chillicothe, O.
Richard Rider Putnam,	B.S. (Chem.)	139	Kalamazoo.
Mary Agnew Pyle,			West Chester, Pa.
Joseph Henry Quarles,	Ph.B.	69	Milwaukee, Wis.
Matthew Quinlan,	B.L.	3	Chicago, Ill.
James Merton Raikes,	B.S. (C.E.)	73	Burlington, Ia.
Hellen Elisabeth Ramsdell,			Manistee.
Floyd Hamilton Randall,	B.S.	32	West Bay City.
Lida Eleanor Randall,			Huntley, Ill.
George Mortimer Ransom,	B.S. (Bio.)	3	Toledo, O.
John Jay Ratcliffe,	B.S.	60	Waukon, Ia.
Charles Fish Rathfon,	B.S.		Port Huron.
William Vance Rawson,	B.L.		Michigan City, Ind.
Clarence Webster Raynor,	B.S. (C.E.)	2	Adrian.
Dell Hannah Read,	Ph.B.		Shenandoah, Ia.
Elizabeth Sorge Rebec,	A.B.	105	Ann Arbor.
William Thomas Reece,	Ph.B.		South Jackson.
James Calvin Reed,	B.L.	111	Tuscola, Ill.
Katherine Reed,			Chicago, Ill.
Cora Frances Reilly,	B.L.	97	Chicago, Ill.
Orlando Schairer Reimold,	A.B.	32	Saginaw, West Side.
Frederick Eugene Rheinfrank,	B.S.		Perrysburg, O.
Minerva Belle Rhines,	B.L.	36	Detroit.
Charles Jacob Rice,	B.S.		Columbia.
Ben Cornelius Rich,	B.S. (C.E.)	68	Chicago, Ill.
Herbert Matteson Rich,	B.L.	44	Middleville.
William Barrett Rich,	B.L.	31	Chicago, Ill.
Ann Loomis Richards,	A.B.	93	Ann Arbor.
Florence Loring Richards,	Ph.B.		Ann Arbor.
Albert Nelson Richardson,	B.L.	63	Saginaw, East Side.
Ard Ezra Richardson,	B.S.		Saginaw, East Side.
Frederic Boyd Richardson,	B.L.	92	Caro.
Susannah Hartley Richardson,	A.B.		Ann Arbor.
Nellie Eveline Rickert,	B.L.		Elgin, Ill.
Clarence Henry Riebel,			Petersburg.
Charles Francis Riedinger,	Ph.B.	4	Marquette.
Artemas Wilson Riggs,			Kansas City, Mo.
Florence Edith Ringle,	Ph.B.	3	South Bend, Ind.

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William Harrison Rippey,	B.S. (C.E.)	37	<i>Sturgis.</i>
Walter Robbins,	B.S. (E.E.)	49	<i>Marquette.</i>
Charlotte Jeanette Roberts,	Ph.B.	25	<i>South Bend, Ind.</i>
Effie Lois Roberts,	A.B.	93	<i>Coldwater.</i>
Seth Erastus Roberts,	B.S. (C.E.)	109	<i>Highland Park.</i>
Harry Charles Robinson,	A.B.		<i>Detroit.</i>
Pearl Ernestine Robinson,	B.L.	62	<i>Lansing.</i>
Cora Adell Robison,	B.S.	31	<i>Ann Arbor.</i>
Allen Frank Rockwell,			<i>Chelsea.</i>
George Herbert Roe,	A.B.	57	<i>Buchanan.</i>
Katharine Laura Rogers,			<i>Grand Rapids.</i>
Menz Israel Rosenbaum,	Ph.B.	103	<i>Kalamazoo.</i>
Curt Rosenow,	B.S. (Chem.)	40	<i>Peoria, Ill.</i>
Dorotheo Roth,			<i>Chicago, Ill.</i>
Alice Rothmann,			<i>Ann Arbor.</i>
Mary Ella Roueche,	A.B.	29	<i>Bay City.</i>
Augustine Rousseau,	A.B.		<i>Peoria, Ill.</i>
Russell Sturgis Rowland,	B.S. (Bio.)	12	<i>Grand Rapids.</i>
Clarence D. Rowley,	Ph.B.	22	<i>Rochester, N. Y.</i>
William Benjamin Rubin,	B.L.	107	<i>Milwaukee, Wis.</i>
Jessie Fremont Ruby,	B.S.	121	<i>Union City, Ind.</i>
John Hiram Ruckman,	B.S.	62	<i>Saline.</i>
Albert Wells Russel,	B.S. (Mech. E.)	64	<i>Detroit.</i>
George Bagg Russel,	A.B.	102	<i>Detroit.</i>
Herbert Lafayette Russell,	B.S. (C.E.)		<i>Flint.</i>
Herman Russell,	B.S.		<i>Manistee.</i>
Ralph Emmett Russell,	A.B.	47	<i>Battle Creek.</i>
Edward James Ryan,	B.S. (E.E.)	68	<i>Detroit.</i>
May Cecil Ryan,	A.B.	89	<i>Ann Arbor.</i>
Fannie Ellis Sabin,	Ph.B.	90	<i>Hinsdale, Ill.</i>
Richard Edward Sack,	B.S. (E.E.)	70	<i>Detroit.</i>
Frank Vincent Sackett,	B.S. (E.E.)	6	<i>LaGrange, Ill.</i>
Frank Prather Sadler,	A.B.	62	<i>Grove City, Ill.</i>
Wilbur George Salter,	B.S. (Mech. E.)	108	<i>Chicago, Ill.</i>
Esther Lakin Sanborn,	A.B.	109	<i>West Roxbury, Mass.</i>
Adah Sanders,	B.S. (Chem.)	46	<i>Ypsilanti.</i>
Irma Estelle Sanford,	Ph.B.		<i>Ionia.</i>
Frank Noble Savage,	B.S. (C.E.)		<i>Chicago, Ill.</i>
Gertrude Savage,	Ph.B.	9	<i>Cassopolis.</i>
Christabel Hortense Sawyer,	Ph.B.		<i>Cadillac.</i>
William Schaaake,	B.S. (Mech. E.)	110	<i>Grand Rapids.</i>
Murray Seligman Schloss,	Ph.B.	3	<i>Detroit.</i>
Harry Garr Schock,	A.B.	60	<i>South Bend, Ind.</i>

Matilda Mary Schroeder,	A.B.	36	<i>West Bay City.</i>
Emmet Scott,	B.S. (Mech. E.)	102	<i>LaPorte, Ind.</i>
James Herbert Scott,	A.B.	81	<i>St. Louis.</i>
Francis Joseph Seabolt,	B.S. (E.E.)	26	<i>Ann Arbor.</i>
Charles Ward Seabury,	A.B.		<i>Oak Park, Ill.</i>
Frederick Lyle Searing,	A.B.	105	<i>Mankato, Minn.</i>
Louis Earnest Seas,	B.S. (C.E.)		<i>Vicksburg.</i>
Fanny May Seaver,	B.L.	61	<i>Lake View.</i>
Roda Selleck,	A.B.		<i>Bay City.</i>
Charles Wilber Sencenbaugh,	Ph.B.	108	<i>Aurora, Ill.</i>
Allen Joshua Seney,	Ph.B.	44	<i>Kenton, O.</i>
Henry Mortimer Senter,	B.L.	80	<i>Houghton.</i>
Henry Ormal Severance,	A.B.		<i>South Lyon.</i>
James Seymour, Ph.C.,			<i>Ann Arbor.</i>
Lurene Seymour,	Ph.B.	99	<i>St. Louis, Mo.</i>
William Carey Shafer,			<i>Findlay, O.</i>
Warren Wright Shearer,	A.B.	35	<i>Sidney, O.</i>
Helen Edith Sheean,			<i>Anamosa, Ia.</i>
John Aaron Sheean,	Ph.B.	25	<i>Anamosa, Ia.</i>
Sadie Eleanor Sheehan,	A.B.	62	<i>Niles.</i>
Isaac Sheets,	B.S. (C.E.)	95	<i>Troy, O.</i>
Walter Humphreys Shelby,	B.L.		<i>Grand Rapids.</i>
Lucile Abigail Shelley,	Ph.B.		<i>Cedar Rapids, Ia.</i>
Bernath Pardee Sherwood,	B.L.		<i>Allegan.</i>
Bertha Marion Sherwood,	B.S. (Bio.)	25	<i>Ann Arbor.</i>
Francis John Shields,			<i>Howell.</i>
Samuel Benton Shiley,	B.L.	89	<i>Ann Arbor.</i>
George Curtiss Shirts,	Ph.B.		<i>Grand Rapids.</i>
Madge Genevieve Sibley,	A.B.		<i>Detroit.</i>
Charles Gilchrist Simonds,	B.S. (Mech.E.)	32	<i>Schoolcraft.</i>
Charles Simons,	B.L.		<i>Detroit.</i>
Frank Stanton Simons,	B.S. (C.E.)		<i>Detroit.</i>
Harry Simons,	A.B.	110	<i>Chicago, Ill.</i>
Charles Everett Skinner,	Ph.B.	65	<i>Adrian.</i>
Frederick Gardiner Skinner,	B.S. (C.E.)	104	<i>Detroit.</i>
George Richard Slater,	Ph.B.	65	<i>St. Paul, Minn.</i>
Victor Slayton,	A.B.	29	<i>Grand Rapids.</i>
Lewis Conrad Sleeper,	Ph.B.	58	<i>Lansing.</i>
Katharyne Griffith Sleneau,	A.B.	29	<i>Ann Arbor.</i>
Archibald Whittier Smalley,	A.B.		<i>Chicago, Ill.</i>
Edith Isabel Smart,			<i>Jackson.</i>
Angus Smith,	Ph.B.		<i>Detroit.</i>
Arthur Maurice Smith,	Ph.B.	31	<i>Ionia.</i>

Arthur Whitehead Smith,			<i>Lebanon, O.</i>
Carrie Virginia Smith,			<i>Duvernion, Ill.</i>
Charles Stevens Smith,	B.S.		<i>Battle Creek.</i>
George William Smith,	B.S. (C.E.)	25	<i>Cheboygan.</i>
Grace Mary Smith,			<i>Saline.</i>
Gustavus Foster Smith,	Ph.B.		<i>Alco, Ala.</i>
Henry Horace Smith,	A.B.	101	<i>Ionia.</i>
Jeannette Smith,	B.S.	17	<i>Ann Arbor.</i>
Jessie Hunter Smith,	A.B.	34	<i>Ann Arbor.</i>
Lloyd Bown Smith,	B.S. (C.E.)	30	<i>Paola, Kan.</i>
Lois S. Smith,	B.L.		<i>Ann Arbor.</i>
Roy Burnett Smith,	B.L.		<i>Jackson.</i>
Shirley Wheeler Smith,	B.S.	31	<i>Hastings.</i>
Winnifred Smith,	Ph.B.	8	<i>Cassopolis.</i>
George Rollins Snover,	B.S. (M.E.)	75	<i>Detroit.</i>
Electra Blood Solis,	Ph.B.		<i>St. Clair.</i>
Frank Clement Soper,	B.S. (E.E.)	64	<i>Ypsilanti.</i>
John Cecil Spaulding,	A.B.	21	<i>St. Johns.</i>
Oliver Lyman Spaulding, Jr.,	A.B.	105	<i>St. Johns.</i>
Franklin Bennett Spear, Jr.,	Ph.B.	102	<i>Marquette.</i>
Philip Bennett Spear,	Ph.B.	99	<i>Marquette.</i>
Charles Henry Spencer,	B.S. (C.F.)	73	<i>Ann Arbor.</i>
Errol Henry Spicer,	B.S.	27	<i>Detroit.</i>
William Albert Spitzley,	A.B.	114	<i>Detroit.</i>
Dandridge Spotswood,			<i>Petersburg, Va.</i>
Lena Elizabeth Sprague,	Ph.B.	90	<i>Kalamazoo.</i>
Alice Rosalie Springsteen,	B.L.		<i>St. Joseph.</i>
Clarence William Squier,	B.S. (E.E.)	18	<i>Grand Rapids.</i>
Henry Winslow Standart,	B.S.		<i>Detroit.</i>
Lester Abbott Stanley,	B.S. (E.E.)	92	<i>Kalamazoo.</i>
William Aikin Starrett,	B.S. (Mech.E.)	27	<i>Oak Park, Ill.</i>
George Howe St. Clair,	B.S.	63	<i>Duluth, Minn.</i>
James Thorpe St. Clair,	B.S. (E.E.)	4	<i>Ann Arbor.</i>
Chilton Rupert Stearns,	A.B.	77	<i>Sheridan,</i>
Will Theodore Stebbins,	B.S. (E.E.)	60	<i>Battle Creek.</i>
Robert Steck,	B.S. (E.E.)	17	<i>Chicago, Ill.</i>
Mamie Catherine Stegath,	B.L.		<i>Escanaba.</i>
William Dietrich Steinkamp,			<i>St. Louis, Mo.</i>
Leander Winslow Steketee,	B.S. (Mech.E.)	83	<i>Grand Rapids.</i>
Herbert Philip Stellwagen,	B.S.		<i>Wayne.</i>
Isaac Farber Stern,	B.S. (C.E.)	127	<i>Chicago, Ill.</i>
Adda Laura Stevens,			<i>Ann Arbor.</i>
Bessie Bingham Stevens,	A.B.	73	<i>Ann Arbor.</i>

Karl Krenkell Stevens,	B.S.		<i>Saginaw, East Side.</i>
Adrian Delano Stevenson,	B.S. (E.E.)	66	<i>West Point, Neb.</i>
George Charles Steventon,			
Ph.C.,			<i>Youngstown, O.</i>
Ada Stewart,	A.B.	74	<i>Peoria, Ill.</i>
Mary Elizabeth Stewart,			<i>Negaunee.</i>
Louise Burnett Stickney,			<i>Grand Haven.</i>
†Frank Adams Stivers,	B.L.	104	<i>Liberty, Ind.</i>
Edward Marsh St. John,	B.S. (C.E.)	104	<i>Ann Arbor.</i>
J. Sterling St. John,	B.L.	84	<i>Ann Arbor.</i>
George Chickering Stone,	Ph.B.		<i>Saginaw, West Side.</i>
Albert Henry Stoneman,	A.B.	26	<i>Ann Arbor.</i>
Susan Lavinia Stoner,	B.L.	67	<i>Centre View, Mo.</i>
Oscar Strauss,	Ph.B.		<i>Des Moines, Ia.</i>
Claude Franklin Streeter,	B.S. (C.E.)	8	<i>Jackson.</i>
John Frederick Streib,	B.S. (C.E.)	25	<i>Bucyrus, O.</i>
Emil G. Struckman,	B.S. (Mech.E.)	81	<i>Bartlett, Ill.</i>
Duane Reed Stuart,	A.B.	75	<i>Detroit.</i>
Mary Belle Stuart,			<i>Schoolcraft.</i>
Mary Denio Stuart,			<i>Constantine.</i>
Grace Delafield Sturges,	Ph.B.	70	<i>Oak Park, Ill.</i>
Amos Dorwin Sturgis,	B.L.		<i>Sturgis.</i>
Don Sturgis,	B.L.		<i>Ann Arbor.</i>
James Wellings Sturgis,	A.B.	49	<i>Ann Arbor.</i>
Martha Theresa Sturgis,			<i>Ann Arbor.</i>
John Joseph Sullivan,			<i>Maidstone Cross, Ont.</i>
Edson Read Sunderland,	A.B.	62	<i>Ann Arbor.</i>
Florence Sunderland,	A.B.	8	<i>Ann Arbor.</i>
Gertrude Sunderland,	A.B.	105	<i>Ann Arbor.</i>
Richard Huss Sutfen,	A.B.	23	<i>Defiance, O.</i>
Edward Marvin Swain,	B.S. (Mech.F.)		<i>Buchanan.</i>
George Robert Swain,	A.B.	4	<i>Lakeport, N. H.</i>
Franklin VanVechten Swan,	B.S. (E.E.)	76	<i>Flint.</i>
Frederick Tyndall Swan,			<i>Potsdam, N. Y.</i>
Dan Gardner Swannell,	B.S.	34	<i>Champaign, Ill.</i>
James Marcus Swift,	A.B.	85	<i>Fall River, Mass.</i>
Mary Agnes Taggart,			<i>Ionia.</i>
Ralph Cone Taggart,	Ph.B.	37	<i>Grand Rapids.</i>
George Welles Tanner,	B.S. (E.F.)	74	<i>Fairbault, Minn.</i>
Wellington Clute Tate,	B.S. (E.E.)	103	<i>Ann Arbor.</i>
Clifford Ross Tatem,	B.S. (E.E.)	44	<i>Hartwell, O.</i>
Hetty Mary Taylor,	Ph.B.	10	<i>Bay City.</i>
James Stewart Taylor,	B.S.		<i>Almont.</i>

Joseph Harry Taylor,			<i>Ann Arbor.</i>
Wesley Ewing Taylor,	B.S.	26	<i>Wheelersburg, O.</i>
Laura Pauline Temple,	A.B.		<i>Granville, N. Y.</i>
Ida Belle Tenney,			<i>Troy, O.</i>
Mark Wayland Tenny,			<i>Holly.</i>
Ida Margaret Thain,	B.L.		<i>Oak Park, Ill.</i>
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Walter Heman Woods,	B.S. (E.E.)	23	<i>Ann Arbor.</i>
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Henry Lumsden Woolfenden,	A.B.	56	<i>Detroit.</i>
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Mary Augusta Woolley,	B.L.	11	<i>Marshall.</i>
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Murray Maywood Sears,	<i>Ann Arbor.</i>
Horace Watson Sherwood,	<i>Ann Arbor.</i>
Meiyii Shie [Mary Stone],	<i>Kiukiang, China.</i>

Samuel Bliss Stegeman,	<i>Allegan.</i>
Horace Edward Toothaker,	<i>Campello, Mass.</i>
Clark Francis Tuomy,	<i>Ann Arbor.</i>
William Raymond Turner,	<i>Monroe.</i>
James Wallace Van Dusen,	<i>Cleveland, O.</i>
Frederick Thomas Van Urk,	<i>Kalamazoo.</i>
William Fisler Vernor,	<i>Ann Arbor.</i>
Mary Eloise Walker, A.B.,	<i>Old Mission.</i>
Francis Joseph Welsh, LL.B.,	<i>Ann Arbor.</i>
Charles Edward White,	<i>Rome, N. Y.</i>
Harry Hood Whitten, A.B., <i>Carthage Coll.,</i>	<i>Nokomis, Ill.</i>
Mary Ann Wild,	<i>Battle Creek.</i>
John Zieg,	<i>Allegheny, Pa.</i>

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Otto Carl Ahlers,	<i>Bellevue, Ia.</i>
Ralph Balch,	<i>Kalamazoo.</i>
Frederick Amos Baldwin,	<i>Jackson.</i>
Rolla Joseph Baldwin, B.S., <i>Univ. of Texas,</i>	<i>Austin, Tex.</i>
Fannie E. Barrett,	<i>Kalamazoo.</i>
Frank Monroe Brininstool,	<i>Warsaw, N. Y.</i>
Harry Brown Britton,	<i>Dayton, O.</i>
Alice Crawford Brown, A.B., <i>Vassar Coll.,</i>	<i>Detroit.</i>
Hortense Valentine Bruce,	<i>Burnside.</i>
Mary Kate Byington,	<i>Battle Creek.</i>
Bert Mather Carr,	<i>Cedar Springs.</i>
Claudius Bidleman Chapin, B.S., <i>Mich.</i>	
<i>Agr. Coll.,</i>	<i>Schoolcraft.</i>
Abbott Lathrop Cooley,	<i>Ann Arbor.</i>
Arthur Samuel Cornell,	<i>West Flamboro, Ont.</i>
Mary Agnes Dangel,	<i>Fort Jones, Cal.</i>
Hester Sophia Antoinette Davies,	<i>Battle Creek.</i>
Joseph Trower Davies,	<i>Battle Creek.</i>
William Grant Decker,	<i>Detroit.</i>
Stowell Barnard Dudley, Ph.B., <i>Oberlin Coll.,</i>	<i>Oberlin, O.</i>
Albert Jeremiah Elliott,	<i>Uxvorton, Prov. of Quebec.</i>
Abraham W. Eppinger,	<i>Bismarck, N. Dak.</i>
Benjamin Bigelow Fisher,	<i>Horicon, Wis.</i>
Edward Samuel Fogg,	<i>Shiloh, N. J.</i>
Orrin Henry Freeland,	<i>Mason.</i>
Darwin Spencer Gailey,	<i>Ashland, Ill.</i>
Neil Alexander Gates,	<i>Ann Arbor.</i>

Charles B. Gauss,	<i>Palo.</i>
Stella Minna Goodnough,	<i>Brattleboro, Vt.</i>
Ralph Nevin Gorden,	<i>Abilene, Kan.</i>
Carl Braun Groschner,	<i>Napoleon, O.</i>
Albert Culver Hammett,	<i>Chicago, Ill.</i>
Edward Palestine Hawkins,	<i>Ann Arbor.</i>
Rhoda Grace Hendrick,	<i>Hamburg.</i>
Glenn Henley,	<i>Fairmount, Ind.</i>
Rudolph Bernhard Hoermann, A.B., <i>North-</i>	<i>Watertown, Wis.</i>
<i>western Univ.,</i>	<i>St. Louis.</i>
George Aloysius Hofstetter,	<i>Battle Creek.</i>
Mary Myrtle Hunter,	
Howard Aiken Ijams, B.S., <i>Univ. of Ten-</i>	<i>Knoxville, Tenn.</i>
<i>nessee,</i>	<i>Ann Arbor.</i>
Noah Harrison Jackson,	<i>Saginaw, East Side.</i>
Benjamin William Kelly,	<i>Ann Arbor.</i>
Joseph Alphonsis Kelly,	<i>Ann Arbor.</i>
Cornelia Frances Kerr,	<i>Knoxville, Tenn.</i>
John Henry Kincaid,	<i>Milan.</i>
James Rollin Kingsley,	<i>Kalamazoo.</i>
Edward Ernest Knauer,	<i>Brooklyn.</i>
Lewis Frank Ladd,	<i>St. Paul, Minn.</i>
David Herman Landø,	<i>Lawton.</i>
Frederick Percy Lawton,	<i>Greenfield, O.</i>
Walter Irwin Le Fever,	<i>Quaker City, O.</i>
Homer Garrison Long,	<i>Bryan, O.</i>
James Long,	<i>Pontiac.</i>
William Beatty Lunn,	<i>Olivet.</i>
John Albert Mapes, B.S., <i>Olivet Coll.,</i>	<i>Caledonia, N. Y.</i>
Simon Samuel McKenzie,	<i>Port Huron.</i>
Albert Beckman Mills,	<i>Springfield, O.</i>
Clarence Volney Moores,	<i>Vassar.</i>
Harry Richard Morris,	<i>Westby, Wis.</i>
Morris Morrison,	<i>Lyons.</i>
Frederick Lee Morse,	<i>St. Johns.</i>
Joseph Robert Mountain,	<i>Detroit.</i>
Hugh Morton Jolliffe Mulheron,	<i>Chillicothe, Mo.</i>
Edwin Harrington Musson,	<i>Sand Beach.</i>
Charles Hannibal Nims, A.B., <i>Oberlin Coll.,</i>	<i>Dorchester, Mass.</i>
Marion Nute,	<i>Engelholm, Sweden.</i>
Gerda Ohlson,	<i>Ann Arbor.</i>
Carlin Philips,	<i>Evansville, Ky.</i>
Ferdinand Henry Pirnat,	

Thomas Lorenzo Proper,
 George Hampton Putney,
 David Walker Reed,
 Eva Ann Reed,
 Arthur Patrick Rooney,
 Fred Magee Rossiter,
 Henry Christian Schoepfle,
 Ida May Shively,
 Edmund Alfred Sizer,
 Arthur Julius Skeel,
 Raymond Duane Sleight,
 Georgia Smeallie, B.L., B.S.,
 Paul Smits,
 Otha Snear,
 Isaac Franklin Steiner,
 Anna Steuernagel,
 Willard Stiles Stevens,
 John Benjamin Thielen,
 Clarence Abram Traphagen,
 Harry Isaac Van Tuyl, B.S.,
 George Barclay Wallace,
 Harry Clark Watkins,
 Frans Henry Wessels,
 Arthur Eddy West,
 Mary Wetmore,
 Jean Calista Whitney,
 Edward Peyton Wilbur,
 Robert Dwight Wilson,
 William Henry Witter,
 Carrie Jane Young,
 Alois Lawrence Ziliak,

West Stockbridge, Mass.
Ionia.
Battle Creek.
Battle Creek.
Horton, Kan.
Battle Creek.
Sandusky, O.
Battle Creek.
Kankakee, Ill.
Cleveland, O.
Laingsburg.
Independence, Ia.
Zeeland.
Stryker, O.
Bluffton, O.
Winona, Minn.
Evansville, Wis.
Gorham, N. Y.
Fenton.
Ypsilanti.
Portland, Ore.
Norvell.
Battle Creek.
Eaton Rapids.
Allegan.
Battle Creek.
Kalamazoo.
Medway, Mass.
Bucyrus, O.
Parma.
Haubstadt, Ind.

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as second year students in the Department of Medicine and Surgery:

John Fletcher Byington,
 Henry Bennett Gammon,
 Charles Chesterfield Nicola,
 Jessie Fremont Ruby,
 William Albert Spitzley,
 James Rupert Wolfenden,

Battle Creek.
Creston, Ill.
Battle Creek.
Union City, Ind.
Detroit.
Chicago, Ill.

FIRST YEAR STUDENTS.

NAME.
 Helen Emelia Affeld,

RESIDENCE.
Chicago, Ill.

Titus Nathaniel Alexander,	<i>Detroit.</i>
John William Amesse,	<i>Lake Linden.</i>
Howard Bigelow Baker, B.S., <i>Mich. Agr.</i>	
<i>Coll.,</i>	<i>Lansing.</i>
Mortimer Dellville Barney,	<i>Chillicothe, Mo.</i>
James Hutchinson Bartley,	<i>Albion.</i>
Simeon Isaac Battiste,	<i>Detroit.</i>
Robert Barbour Bell,	<i>Amherstburg, Ont.</i>
Carrie Elizabeth Bing,	<i>Delaware, O.</i>
John Harwine Bradley,	<i>Spickard, Mo.</i>
Mary Martha Brown,	<i>Detroit.</i>
Charles Frederick Browne,	<i>Kalamazoo.</i>
Howard Russel Bryson,	<i>Watsonstown, Pa.</i>
Minnie Burnham,	<i>Macomb, Ill.</i>
Thomas Stone Burr, A.B., <i>Bowdoin Coll.,</i>	<i>Bangor, Me.</i>
Eva Joanna Buxton,	<i>Louisville, Ky.</i>
Leo Louis Cahill,	<i>Mendon.</i>
Emlin Verne Campbell,	<i>Butler, Ind.</i>
Ellen Rose Canney,	<i>New Bedford, Mass.</i>
Eugene R. Carpenter,	<i>Knobnoster, Mo.</i>
Charles Arthur Cattermole,	<i>Fort Madison, Ia.</i>
Loretta Katherine Cavanaugh,	<i>New Bedford, Mass.</i>
Edwin M. Chauncey,	<i>Girard.</i>
Yung Ping Cheng,	<i>Canton, China.</i>
Albert Ambler Church, A.B., <i>Oberlin Coll.,</i>	<i>Lansing.</i>
Charles Glenn Church,	<i>Marysville, O.</i>
Carrie Simpson Coleman,	<i>Centre, Ind.</i>
Clarendon James Combs,	<i>Elmira.</i>
Norton Dusenbury Coons,	<i>Mt. Pleasant.</i>
Alexander Corpron,	<i>Strathroy, Ont.</i>
John DeLamater Covert,	<i>Brooklyn.</i>
John Martin Craig,	<i>Battle Creek.</i>
Kate Louise Crawford,	<i>Ann Arbor.</i>
Samuel Conway Crow,	<i>Glenfield, Pa.</i>
Thomas Levi Dagg,	<i>West Bay City.</i>
Charles Elbert Davis,	<i>Woodward, O. T.</i>
Herman Russell Dewey, Ph.B., <i>Hillsdale Coll., Hillsdale.</i>	
Lydia Maria DeWitt,	<i>Dexter.</i>
Hugh William Dicken,	<i>Romeo.</i>
Fred Strayer Diefendorf,	<i>Canajoharie, N. Y.</i>
Victor Charles Doherty,	<i>Clare.</i>
Mary Victoria Dryden,	<i>Battle Creek.</i>
Fanny Almara Dunn,	<i>Bismarck, N. Dak.</i>

George Oliver Evans,	<i>Pittsburgh, Pa.</i>
George Charles Fisher,	<i>Centerville.</i>
John Edwin Froom,	<i>Battle Creek.</i>
George Ernest Fuller, Ph.B., <i>Alfred Univ.,</i>	<i>Richburg, N. Y.</i>
Arthur Ernest Gale,	<i>Haverhill, Mass.</i>
Thomas Gilvere,	<i>Bement, Ill.</i>
Clarence Allen Good,	<i>Richfield.</i>
Henry Alexander Grant,	<i>Marquette.</i>
Newton Henry Greenman,	<i>Decatur.</i>
Ovidus Arthur Griffin,	<i>Fayette, O.</i>
James Hagan,	<i>Chelsea.</i>
Fred Hopkins Harris,	<i>Coldwater.</i>
Charles Frederic Hastings, B.S., <i>Massachu-</i>	
<i>setts Institute of Technology,</i>	<i>West Newton, Mass.</i>
Madeleine Marie Hastings,	<i>West Newton, Mass.</i>
Carrie Reed Heald,	<i>Osceola, Neb.</i>
Corydon Ford Heard,	<i>North East, Pa.</i>
Irma Irene Heller,	<i>Fremont, Ind.</i>
Edward James Hobbs,	<i>Battle Creek.</i>
Alva Rufus Hull,	<i>New Sharon, Ia.</i>
Robert Stephen Ingersoll,	<i>Hillsdale.</i>
William S. Jackson,	<i>Muskegon.</i>
Andreas Johannes,	<i>Pontiac.</i>
Adelbiert Allen John,	<i>Battle Creek.</i>
LeRoy Wendell King,	<i>Rome, N. Y.</i>
William David Kinney,	<i>Battle Creek.</i>
Will Mac Lake,	<i>Saginaw, East Side.</i>
Solomon S. Lee,	<i>Lowell.</i>
Wilmer Sanford Lehman,	<i>Edison, Neb.</i>
Mary Josephine Leo,	<i>Taunton, Mass.</i>
William James Little, A.B., <i>Hastings Coll.,</i>	<i>Seward, Neb.</i>
George Munroe Livingston,	<i>Cass City.</i>
Anna Willard Locke, A.B., <i>Wellesley Coll.,</i>	<i>Nashua, N. H.</i>
Lottie B. MacArthur,	<i>Mumford, N. Y.</i>
William Lloyd McCauley, A.B., <i>Univ. of</i>	
<i>New Jersey,</i>	<i>Stanley, N. Y.</i>
Nelson Ferguson McClinton,	<i>Cass City.</i>
Charles Frederick Meinhardt,	<i>Duluth, Minn.</i>
Willard Monfort,	<i>Ithaca.</i>
Bert A. Mount,	<i>Springport.</i>
Harvey Lionel Morris,	<i>Vassar.</i>
Raymond Chester Morris,	<i>Decatur.</i>
Mary Josephine Nachtrieb,	<i>Nathrop, Col.</i>

May Fonda Nadeau,	<i>Seattle, Wash.</i>
Harry Anderson Newkirk,	<i>Bay City.</i>
George Henry Norris,	<i>Port Huron.</i>
†Sylvester Guy Pake,	<i>West Duluth, Minn.</i>
John Leon Parker,	<i>Charles City, Ia.</i>
Olive Grace Perry,	<i>Hillsdale.</i>
Ernest Reginald Pike,	<i>Morris, Conn.</i>
Arthur David Pollock,	<i>Macomb, Ill.</i>
Charles Banning Porter,	<i>Tonica, Ill.</i>
Henry Bertram Potter,	<i>Providence, R. I.</i>
Isabella Reith,	<i>Battle Creek.</i>
Albert Henry Ritter,	<i>Sandusky, O.</i>
Georgia Oriana Robertson,	<i>Jewell, Kan.</i>
Will Henry Roe,	<i>Nashville.</i>
Michael Joseph Rogers,	<i>Chicago, Ill.</i>
Joseph Crocker Scarborough,	<i>Ann Arbor.</i>
Bruno Lyonel Schuster,	<i>Milwaukee, Wis.</i>
Frank Joseph Sexton,	<i>Brockton, Mass.</i>
Stephen Vincent Shea,	<i>Brooklyn, N. Y.</i>
Joseph Sill,	<i>Detroit.</i>
Daniel Gilman Simpson,	<i>Grove City, Pa.</i>
Alexander Joseph Slaven,	<i>Orillia, Ont.</i>
Hallam Pratt Smith,	<i>Saginaw, East Side.</i>
Annie Margaret Stevens,	<i>Farmington, Me.</i>
Abraham Franklin Strickler,	<i>Ann Arbor.</i>
Harry Warner Stuckey,	<i>Ann Arbor.</i>
William Henry Tefft,	<i>Hastings.</i>
Sharon John Thoms,	<i>Three Rivers.</i>
Benjamin Rush Bradford Townsend,	<i>New Brighton, Pa.</i>
Ray Custer Turck,	<i>Alma.</i>
Herbert Lyman Underwood,	<i>Jamestown, N. Y.</i>
George Andrew Van Fradenburg,	<i>Liberty, N. Y.</i>
Frederick Thomas Van Urk,	<i>Kalamazoo.</i>
Earnest Maxwell Vardon,	<i>Hillsdale.</i>
Clarence Godfrey Vary,	<i>Battle Creek.</i>
Christian Van der Veen,	<i>Grand Rapids.</i>
Edmund Daniel Vince,	<i>Battle Creek.</i>
Silvio Henry Karl von Ruck,	<i>Asheville, N. C.</i>
Herbert Harold Waite, A.B., <i>Amherst Coll.</i> ,	<i>Asheville, N. C.</i>
James Lawson Walsh,	<i>Detroit.</i>
Walter Millar Warren,	<i>Chateaugay, N. Y.</i>
William Isaac Whitaker,	<i>Chelsea.</i>
Charles Henry Williams, Ph.B., <i>Adrian</i>	
<i>Coll., Ph.C.,</i>	<i>Adrian.</i>

Leroy John Wisman,	<i>Frontier.</i>
John E. Worden,	<i>Tacoma, Wash.</i>
John Olof Zellen,	<i>Skaneec.</i>
Joseph Edward Ziliak,	<i>Haubstadt, Ind.</i>

The following students, enrolled in the Department of Literature, Science, and the Arts, are also pursuing studies as first year students in the Department of Medicine and Surgery:

Henry William Charles Bodecker,	<i>New York, N. Y.</i>
Myron LaFayette Downs,	<i>Chicago, Ill.</i>
Mark Stevens Knapp,	<i>Fenton.</i>
James Willis Parker,	<i>Grand Blanc.</i>

SPECIAL STUDENTS.

NAME.	RESIDENCE.
Mary Elizabeth Lapham,	<i>Northville.</i>
Mary Curtis Wheeler,	<i>Elgin, Ill.</i>

Department of Law.

FACULTY.

JAMES B. ANGELL, LL.D., *President.*
LEVI T. GRIFFIN, A.M.
BRADLEY M. THOMPSON, M.S., LL.B.
JEROME C. KNOWLTON, A.B., *Dean.*
JOHN W. CHAMPLIN, LL.D.
FLOYD R. MECHEM, A.M.
THOMAS C. TRUEBLOOD, A.M.
ALEXIS C. ANGELL, A.B., LL.B.
OTTO KIRCHNER, A.M.
HARRY B. HUTCHINS, PH.B., *Dean Elect.*
THOMAS A. BOGLE, LL.B.
ELIAS F. JOHNSON, B.S., LL.M., *Secretary.*
JOHN W. DWYER, LL.M.
THOMAS W. HUGHES, LL.M.
WALTER D. SMITH, LL.B.

THOMAS M. COOLEY, LL.D.,
Lecturer on the Law of Interstate Commerce.
MARSHALL D. EWELL, LL.D.,
Non-Resident Lecturer on Medical Jurisprudence.
JAMES L. HIGH, LL.D.,
Non-Resident Lecturer on Injunctions and Receivers.
JOHN B. CLAYBERG, LL.B.,
Non-Resident Lecturer on Mining Law.
VICTOR C. VAUGHAN, PH.D., M.D.,
Lecturer on Toxicology in its Legal Relations.
MELVILLE M. BIGELOW, PH.D.,
Non-Resident Lecturer on Insurance.
GEORGE H. LOTHROP, PH.B.,
Non-Resident Lecturer on Patent Law.

- HENRY C. ADAMS, PH.D.,
Lecturer on the Railroad Problem.
- ANDREW C. McLAUGHLIN, A.B., LL.B.,
Lecturer on Constitutional Law and Constitutional History.
- RICHARD HUDSON, A.M.,
Lecturer on Comparative Constitutional Law.
- HENRY H. SWAN, A.M.,
Non-Resident Lecturer on Admiralty Law.
- CLARENCE L. MEADER, A.B.,
Lecturer on Roman Law.
- FRANK F. REED, A.B.*
Non-Resident Lecturer on Copyright Law.

STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE.
Aaron Joseph Bessi , LL.B.,	<i>Wahpeton, N. Dak.</i>
Milton Lee Clawson, LL.B.,	<i>Ann Arbor.</i>
Charles John Cole, A.B., <i>Oberlin Coll.</i> , LL.B.,	<i>Ann Arbor.</i>
George Washington Fuller, LL.B.,	<i>Ann Arbor.</i>
Evan Benson Goss, LL.B.,	<i>Rockford.</i>
William Bell Hatch, LL.B., <i>Georgetown Univ.</i> ,	<i>Macon.</i>
Robert Bruce Mitchell, LL.B.,	<i>Freeport, Ill.</i>
John Ward Powers, LL.B.,	<i>Ann Arbor.</i>
George William Smith, LL.B.,	<i>Ann Arbor.</i>
Walter Denton Smith, LL.B., <i>Detroit Coll. of Law</i> ,	<i>Ann Arbor.</i>
Francis Marion Springer, LL.B.,	<i>Ann Arbor.</i>
Adolph Weinberg, LL.B.,	<i>Ann Arbor.</i>

SENIORS.

NAME.	RESIDENCE.
Michael Barnett Aaron,	<i>Chicago, Ill.</i>
Robert Milligan Addleman,	<i>Zollarsville, Pa.</i>
Ulysses Simpson Albertson,	<i>Ann Arbor.</i>
Elmer Louis Allor, B.S.,	<i>Mt. Clemens.</i>
Henry Boardman Anderson,	<i>Chateaugay, N. Y.</i>
John G. Anderson,	<i>Saranac.</i>
George John Arbeiter, B.L., <i>Univ. of Illinois</i> , <i>Plainfield.</i>	
Marvin Melville Atherton,	<i>Sparta.</i>

* Appointed January 16, 1895.

George Emerson Bailey,	<i>Jackson.</i>
Sanford Gadcome Baker, B.S., <i>Northern</i>	
<i>Indiana Univ.,</i>	<i>Woodville, O.</i>
Richard James Barr,	<i>Wilton Centre, Ill.</i>
Arthur Calvin Bartels,	<i>Denver, Col.</i>
George Howard Bayliss, B.S., <i>Northern</i>	
<i>Indiana Normal Univ.,</i>	<i>Hudson.</i>
John Wesley Beemer, B.S., <i>Northern Indi-</i>	
<i>ana Normal Univ.,</i>	<i>Compton, Ill.</i>
James Harvey Bigger,	<i>Morganza, Pa.</i>
John William Bingham,	<i>Milan, Mo.</i>
Claude Corbly Bishop, B.S., <i>National</i>	
<i>Normal Univ.,</i>	<i>Walton, Ind.</i>
Jonathan James Bishop,	<i>Port Townsend, Wash.</i>
Joseph Edward Bland,	<i>Alameda, Cal.</i>
Henry Blatchford, A.B., <i>McGill Univ.,</i>	<i>Montreal, Province of</i>
	<i>Quebec.</i>
George Lowden Bowman,	<i>LeMars, Ia.</i>
Thomas Parks Bradfield, Ph.B.,	<i>Grand Rapids.</i>
Claude Arthur Brayton,	<i>Howell.</i>
Henry Lewis Bright, A.B., <i>William Jewell</i>	
<i>Coll.,</i>	<i>Belton, Mo.</i>
George Washington Peritry Brown,	<i>Mt. Vernon, Ind.</i>
Harry Elmer Brown,	<i>Geneseo, Ill.</i>
John William Brown,	<i>Ann Arbor.</i>
Emory Durward Brownlee,	<i>Kingfisher, O. T.</i>
Harry Conant Bulkley, A.B.,	<i>Detroit.</i>
John Sidney Burnet,	<i>Chicago, Ill.</i>
Philo G. Burnham, B.S., <i>Antioch Coll.,</i>	<i>Woodstock, O.</i>
Norman McLaren Cameron,	<i>Denver, Col.</i>
Arthur DeLancey Campbell,	<i>Detroit.</i>
Guilford Elvene Campbell,	<i>Vandalia.</i>
Ira Randolph Carter,	<i>Oxford Junction, Ia.</i>
Charles David Cary,	<i>Chicago, Ill.</i>
Llewellyn Barton Case,	<i>Utica, N. Y.</i>
Lemuel Oliver Caswell,	<i>Bozeman, Mon.</i>
Phillip Percy Beaugrand Champagne,	<i>Chicago, Ill.</i>
William Herbert Charnley, Ph.B.,	<i>Goshen, Ind.</i>
Willis Sherman Clark,	<i>Marine City.</i>
John Clarkson,	<i>Winfield, Kan.</i>
Walter Roy Clayton,	<i>Troy, O.</i>
Charles Haskell Coates,	<i>Neenah, Wis.</i>
Bret Harte Cockett,	<i>Joliet, Ill.</i>

-
- Frank Christopher Cook,**
Ronoldo Merdeith Cooper,
James Allen Cotner,
 William Alexander Coutts,
 Arthur Howe Covert, A.B.,
 Robert Byron Crane,
 Lee Randall Crawford,
 Hubert Richmond Crozier,
 Andrew Judge Curran, B.S., *Kansas Normal Coll.,*
 Charles Wesley Curtis,
 Henry Howard Cushing,
 Lewis J. Dann,
 Albert Elmer Davis, A.B., *Wabash Coll.,*
 John Nelson Davis,
 George William Dayton,
 Jesse LeRoy Deck,
 Charles Lemuel DeVault,
 States Dickson, B.S., *Lombard Univ.,*
 Thornton Dixon,
 William Dobbins,
 John Walter Dohany,
 Cornelius Francis Donahoe,
 William Henry Dorgan,
 Warwick Miller Downing,
 Thomas Francis Doyle,
 Walter Wendell Drew, A.B.,
 William Gray Duncan,
 Robert Winfield Dunn,
 Paul Dillingham Durant,
 Horace Levi Dyer,
 George Burlingame Dygert, Ph.B.,
 Charles Wesley Eastman,
 Frank Lewis Edinborough,
 George Collingwood Edwards,
 Walter Millard Ellett, Ph.B., *Mt. Union Coll.,*
 Evan Lawrence Evans,
 George Adams Everett, B. S., *Fayette Normal Univ.,*
 Richard Lazenby Ewbank,
 George Francis Carpenter Eyre,
 John William Ferrier,
- Detroit.*
Kokomo, Ind.
Logansport, Ind.
Chatham, Ont.
Ann Arbor.
Kalamazoo.
Colebrook, N. H.
Ann Arbor.

Cherokee, Kan.
West Sumpter.
Toledo, O.
Millett.
Indianapolis, Ind.
Roseburg, Ore.
Dade City, Fla.
Roodhouse, Ill.
Churubusco, Ind.
Kewanee, Ill.
Dundee.
Arkoe, Mo.
Farmington.
Ishpeming.
Paw Paw.
Denver, Col.
LaSalle, Ill.
Grand Rapids.
Dunbar, Pa.
Chicago, Ill.
Columbus, Wis.
St. Louis, Mo.
Ann Arbor.
Marquette.
West Bay City.
Houghton.

Alliance, O.
Corunna.

Lytton, O.
Guilford, Ind.
Detroit.
Council Bluffs, Ia.

George Samuel Field,	<i>Corunna.</i>
William Atlas Finch,	<i>Finch, N. C.</i>
Maurice Elmer Fitzgerald,	<i>Logansport, Ind.</i>
Frederick Junias Flagg,	<i>Toledo, O.</i>
William Harvey Flanery, B.S., <i>National</i>	
<i>University,</i>	<i>Sandy Hook, Ky.</i>
Walter Scott Flint,	<i>Potsdam, N. Y.</i>
Vernon Okey Ford,	<i>Chicago, Ill.</i>
Isaac Foster,	<i>Gladwin.</i>
Elmer Elsworth Gardner,	<i>San Francisco, Cal.</i>
Frank Garrett, A.B., <i>Hamilton Coll.,</i>	<i>Leavenworth, Kan.</i>
Oscar C. Garrett,	<i>Elsie.</i>
Fred Howard Gaston, B.S., <i>Highland Park</i>	
<i>Normal Coll.,</i>	<i>Des Moines, Ia.</i>
Curtis Frank Gilkey,	<i>Plainwell.</i>
Garland R. Gillespie,	<i>Tecumseh.</i>
John Wilber Gillespie,	<i>Pontiac.</i>
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Erasmus Lee Norris,	<i>Ann Arbor.</i>
James Timothy Norris,	<i>Watertown, Wis.</i>
Henry Edward Nothomb, B.S., <i>Iowa State</i>	
<i>Normal School,</i>	<i>Nevada, Ia.</i>
Bert Edward Nussbaum,	<i>Plymouth, Ind.</i>
Herbert King Oakes,	<i>East Tawas.</i>
George Timothy O'Farrell,	<i>Defiance, O.</i>

Roger Stanley Olbinski,	<i>Grand Rapids.</i>
Edgar Paul O'Leary,	<i>Aral.</i>
Charles Marvin O'Neill,	<i>Lamar, Mo.</i>
Douglas Pattison,	<i>Freeport, Ill.</i>
Herbert Edmund Peckham, A.B.,	<i>Ann Arbor.</i>
Stuart Hoffman Perry, A.B.,	<i>Pontiac.</i>
William Smith Pierson,	<i>Flint.</i>
Harry Anderson Pratt,	<i>Pittsburgh, Pa.</i>
Orville Wilbur Prescott,	<i>Cleveland, O.</i>
William Howard Prescott, Ph.B., <i>Chicago</i>	
<i>University,</i>	<i>Cleveland, O.</i>
William Pringle,	<i>Ann Arbor.</i>
David Irving Prugh,	<i>Dayton, O.</i>
Frank Randolph, M.D.,	<i>White Pigeon.</i>
Clifford H. Rauch,	<i>Eric.</i>
Thomas Benton Reeder,	<i>Logansport, Ind.</i>
Alfred Rice,	<i>Curries Crossing, Ont.</i>
J. DeForest Richards,	<i>Douglas, Wyo.</i>
Ira Wells Riford,	<i>Benton Harbor.</i>
Arthur William Rinehart,	<i>Union, Ore.</i>
Herbert Norman Rose,	<i>Mt. Pleasant.</i>
John Albert Rosen,	<i>Topeka, Kan.</i>
Lewis Eldoras Royal,	<i>Mt. Pleasant.</i>
Joseph Gordon Russell,	<i>Urbana, O.</i>
Pierce Howard Ryan,	<i>Eureka, Cal.</i>
Elmer Guy Ryker,	<i>Springfield, Mo.</i>
Leland Howard Sabin,	<i>Centerville.</i>
Harry Young Saint, A.B., <i>Ohio Wesleyan</i>	
<i>Univ.,</i>	<i>Delaware, O.</i>
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J. Casper Sauer,	<i>St. Paul, Minn.</i>
Thomas Francis Savage,	<i>Detroit.</i>
Thomas Anton Scherer,	<i>Ottawa, Ill.</i>
William Ralph Schmidt,	<i>Lockport, Ill.</i>
Charles John Schuck,	<i>Pittsburgh, Pa.</i>
Edward Milton Selby,	<i>Ventura, Cal.</i>
Angus Roy Shannon,	<i>Chicago, Ill.</i>
George Elmer Sharp,	<i>Taylorville, Ill.</i>
Howard Melvin Sharp,	<i>Millersburg, O.</i>
Charles Coville Shearer,	<i>Coldwater.</i>
Lowie Lucas Shelton,	<i>Galesburg, Ill.</i>

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|--|---------------------------|
| Edmund Claude Shields, B.L., | <i>Howell.</i> |
| Alfred Lee Short, | <i>North East, Pa.</i> |
| Joseph Hudson Short, | <i>Vicksburg, Miss.</i> |
| William Henry Simons, | <i>Coldwater.</i> |
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| James Leonard Smalley, | <i>Springfield, Mo.</i> |
| Newton Jasper Smith, Jr., B.S., <i>National</i> | |
| <i>Normal Univ.,</i> | <i>Blanton, Tex.</i> |
| Edward Everett Spear, | <i>Lincoln, Neb.</i> |
| William Ambrose Spill, | <i>Warren, O.</i> |
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| Weed Thorington Starkweather, | <i>Romeo.</i> |
| Carl Henry Stein, | <i>Owosso.</i> |
| John Harris Stephens, | <i>Dilltown, Pa.</i> |
| Louis Edson Stewart, | <i>Bellaire.</i> |
| Lewis Charles Stocking, | <i>Ann Arbor.</i> |
| Heber Truman Strong, | <i>Detroit.</i> |
| Frederick C. Struckmeyer, | <i>Chicago, Ill.</i> |
| Myron Richard Sturtevant, | <i>Springfield, Mass.</i> |
| Bradshaw Hall Swales, | <i>Detroit.</i> |
| Harvey Stowe Taft, | <i>Ann Arbor.</i> |
| Richard Lee Taneyhill, | <i>Millersburg, O.</i> |
| Charles Alexander Taylor, | <i>Sands.</i> |
| Thomas Dudley Taylor, | <i>Owosso.</i> |
| Bennette Smartt Terry, | <i>Bentonville, Ark.</i> |
| Charles Donald Thompson, | <i>Bad Axe.</i> |
| Ernest Laurie Thompson, | <i>Hepler, Kan.</i> |
| Osmond Holmes Tower, | <i>Ionia.</i> |
| Irwin Joseph Truman, B.S., <i>Highland Park</i> | <i>Sioux City, Ia.</i> |
| <i>College,</i> | <i>Cambridge, O.</i> |
| Charles Samuel Tumbaugh, | <i>Holland.</i> |
| Arthur Van Duren, | |
| Giovanni Raphael Frank Villa, B.L., <i>Whit-</i> | <i>Walla Walla, Wash.</i> |
| <i>man College,</i> | |
| William Henry Vodrey, A.B., <i>Bethany</i> | <i>East Liverpool, O.</i> |
| <i>Coll.,</i> | <i>Cheyenne, Wyo.</i> |
| George Hiram Voorhees, | <i>Rew.</i> |
| Charles Matthews Waidelich, | <i>Detroit.</i> |
| Harry Hugh Wait, | <i>Grand Rapids.</i> |
| Hadley Horton Walch, | <i>Rochester, N. Y.</i> |
| Alexander Gilbraith Wall, | <i>Hartland.</i> |
| Henry Marion Wallace, | |

James Paddock Wason,	<i>Delphi, Ind.</i>
James Clyde Watt,	<i>Saranac.</i>
William Edwin Watt,	<i>Carbondale, Pa.</i>
James Joseph Weadock,	<i>Lima, O.</i>
James Augustine Welch,	<i>Shamokin, Pa.</i>
Henry Hermann Wende,	<i>Mill Grove, N. Y.</i>
Charles Stuart Wharton,	<i>Chicago, Ill.</i>
Lester Cook Whitten,	<i>Nokomis, Ill.</i>
Ralph Horace Wilkin,	<i>Robinson, Ill.</i>
Daniel Roderick Williams,	<i>Dawn, Mo.</i>
Guy Voorhees Williams,	<i>Portsmouth, O.</i>
Kenneth Dunham Williams,	<i>Atlanta, Ill.</i>
Olney Scott Williams,	<i>Socorro, N. Mex.</i>
Guy Merrill Wilson,	<i>Flint.</i>
Hal King Wilson,	<i>Carmi, Ill.</i>
Charles Henry Winkenwerder,	<i>Denver, Col.</i>
Frederick Wightman Winkler,	<i>Milwaukee, Wis.</i>
Henry James Witbeck,	<i>Chicago, Ill.</i>
Forest Wood,	<i>Ravenswood, Ill.</i>
Fred Abell Wood,	<i>Dakota City, Neb.</i>
James Harold Wood,	<i>Fenton.</i>
David Burnham Woodworth,	<i>Chicago, Ill.</i>
Lewis Cass Wright,	<i>North Adams.</i>
Gilliam Clark Yoes,	<i>Mountainburg, Ark.</i>
Jessie Grant Yont,	<i>Brook, Neb.</i>
John Joseph Zimmer, A.B., <i>Detroit Coll.,</i>	<i>Williamston.</i>

SPECIAL STUDENTS.

NAME.	RESIDENCE.
George Albert Chapman,	<i>Hudson.</i>
Dwight Bissell Cheever, B. S.,	<i>Ann Arbor.</i>
Orange Charles Flanagan,	<i>Allegan.</i>
John Engelbert Gasteiger,	<i>Johnstown, Pa.</i>
Willard Wilmer Griffin, Ph.B.,	<i>Ann Arbor.</i>
Edward Newton Heath,	<i>Marshall.</i>
Walter McGurn,	<i>Rochester, N. Y.</i>
Clayton Philip Rockwood, A.B., <i>Hiram Coll.,</i>	<i>Granger, O.</i>
Charles Smith, A.B., <i>De Pauw Univ.,</i>	<i>Ann Arbor.</i>

The students named below, enrolled in the Department of Literature, Science, and the Arts, also pursue studies in the Department of Law.

Robert Oliver Austin,	<i>Morrice.</i>
Edmond Block,	<i>Chattanooga, Tenn.</i>
Arthur Collier Bloomfield,	<i>Jackson.</i>

John Corbin, Jr.,
Herbert Allan Dancer,
Charles Woodworth Foster,
James Sumner Handy,
Alfred Hatch Hunt,
Lynn Myrton Johnston,
Erasmus Christopher Lindley,
Jacob Lingard Lorie,
Henry Laurence LeHunte Lyster,
James Orin Murfin,
James Calvin Reed,
Menz Israel Rosenbaum,
William Benjamin Rubin,
Charles Wilber Sencenbaugh,
Henry Horace Smith,
Oliver Lyman Spaulding, Jr.,
Wade Warren Thayer,
Herman Pennock Thomas,

New Harmony, Ind.
Chelsea.
Lansing.
Ann Arbor.
Grand Rapids.
Romeo.
Ann Arbor.
Kansas City, Mo.
Detroit.
Ann Arbor.
Tuscola, Ill.
Kalamazoo.
Milwaukee, Wis.
Aurora, Ill.
Ionia.
St. Johns.
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OTIS C. JOHNSON, Ph.C., A.M.
PAUL C. FREER, Ph.D., M.D.
EDWARD D. CAMPBELL, B.S.
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— JULIUS O. SCHLOTTERBECK, Ph.C., B.S.
MOSES GOMBERG, Sc.D.

Assistant.

PERRY F. TROWBRIDGE, Ph.B.

STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE.
Oscar Conrad Diehl, Ph.G., <i>Buffalo Coll.</i> <i>of Pharmacy,</i>	<i>Buffalo, N. Y.</i>
Oscar Charles Dilly, Ph.G., <i>Louisville Coll.</i> <i>of Pharmacy,</i>	<i>Louisville, Ky.</i>
Thomas Jonathan Milner, Ph.C.,	<i>Big Rapids.</i>

*A Fellowship in Research has been established in the School of Pharmacy for a term of two years by means of a gift made for this purpose by Messrs. Frederick Stearns & Company, of Detroit. The income of the Fellowship is three hundred dollars a year. The research will be in Organic Chemistry and Pharmacology. An appointment to the Fellowship will be made by the Faculty from graduates of the school who have qualifications for the work.

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Henry John Bowerfind,	<i>Adrian.</i>
Claude Melnotte Bunn,	<i>Three Rivers.</i>
Cornelius De Jonge,	<i>Zeeland.</i>
George Doehne, Jr.,	<i>New Ulm, Minn.</i>
Gilbert Allen Doty,	<i>Ann Arbor.</i>
Charles Francis Drake,	<i>Chicago, Ill.</i>
Henry Albert Herzer,	<i>Ann Arbor.</i>
Carl Wallace Jones,	<i>Plainwell.</i>
John Judy,	<i>Moorefield, W. Va.</i>
Edgar Livingstone Knapp,	<i>Saginaw, East Side.</i>
James W. T. Knox,	<i>Alvarado, Tex.</i>
Elgin Mallett,	<i>Trenton, Mo.</i>
Fay Melville Marsh,	<i>Lyons.</i>
Garry Windsor Messenger,	<i>Spring Lake.</i>
Ernest Gray Reese,	<i>Bowling Green, O.</i>
Wilbur Benson Scott,	<i>Peoria, Ill.</i>
Walter Scotten,	<i>Detroit.</i>
Charles Henry Steincamp,	<i>Toledo, O.</i>
Wilber John Teeters, B.S., <i>Mornt Union</i> <i>Coll.,</i>	<i>Alliance, O.</i>
Edward Eugene Washburn,	<i>New London, O.</i>
John Lewis Washburn,	<i>Perry, N. Y.</i>
Horace Houghton Waters,	<i>Monroe.</i>
Elisha Bird Williams,	<i>Ann Arbor.</i>

FIRST YEAR STUDENTS.

NAME.	RESIDENCE.
Ursa S. Abbott,	<i>Clear Port, O.</i>
James Willard Ames,	<i>Williamsburg, Ky.</i>
Clarence Henry Baum,	<i>Danville, Ill.</i>
Arthur Fremont Calerdine,	<i>Cincinnati, O.</i>
Frank Harlow Camburn,	<i>Blissfield.</i>
Milo Cornwall,	<i>Denver, Col.</i>
Ernest Lee Curtis,	<i>Ann Arbor.</i>
John Wesley Derry,	<i>Baltimore, Md.</i>
Joseph Max Drew,	<i>Otsego.</i>
Hubert Oscar Gerding,	<i>Glandorf, O.</i>
Edward Proctor Graves,	<i>Kansas City, Mo.</i>
Nelson Alonzo Hall,	<i>Sault Ste. Marie.</i>
Henry Oscar Hanna,	<i>Lincoln, Neb.</i>
John Hartz,	<i>College Point, N. Y.</i>
George Millard Heath,	<i>Ann Arbor.</i>

Frank Carleton Hitchcock,	<i>Plainwell.</i>
Charles Ralph Horton,	<i>Northville.</i>
Charles Morton Hosmer,	<i>Maryville, Mo.</i>
William Henry Housum,	<i>Decatur, Ill.</i>
Theodore A. Jamison,	<i>South Boardman.</i>
Charles Willis Johnson,	<i>Saint Joe Station, Ind.</i>
Harold Elmer Katzenmeyer,	<i>North Baltimore, O.</i>
Fred William Keller,	<i>Paso Robles, Cal.</i>
Edwin Howard Kelley,	<i>Cadillac.</i>
Hiram Louis LaBar,	<i>Fife Lake.</i>
George Lohrstorfer,	<i>Port Huron.</i>
John William Lutes,	<i>Richmond.</i>
Adolph George Mogk,	<i>Ann Arbor.</i>
Robert J. Nisbet,	<i>Colehour, Ill.</i>
Edwin James Fuller Ostrander,	<i>London.</i>
Walter Asbury Parker,	<i>Beardstown, Ill.</i>
V. Carl Richardson,	<i>Carson City.</i>
Harry David Rumps,	<i>Battle Creek.</i>
Isidore Sanders,	<i>Trinidad, Col.</i>
Edward Louis Schmitt,	<i>Rochester, N. Y.</i>
Harry Theophilus Smith,	<i>Phoenixville, Pa.</i>
Richard John Stephany,	<i>Rochester, N. Y.</i>
John George Stromier,	<i>Glasgow, Scotland.</i>
Burton Allen Sweet,	<i>Carson City.</i>
Roland Bert Taber,	<i>Benton Harbor.</i>
Henry Wright Taylor, B.S., <i>Earlham Coll.,</i>	<i>Richmond, Ind.</i>
Miles Lucius Trowbridge,	<i>Syracuse, N. Y.</i>
Milton Lyman Trowbridge,	<i>Syracuse, N. Y.</i>
Fred von Walthausen,	<i>Bay City.</i>
Charles Franklin Watkins,	<i>Traverse City.</i>
Clarence Albert Weaver,	<i>Utica, N. Y.</i>
George Purdy Wilder,	<i>Albion.</i>
Frank Howard Wilson,	<i>Virginia, Ill.</i>
William Wilson, Jr.,	<i>Amsterdam, N. Y.</i>
Edward Chancey Worden,	<i>Ypsilanti.</i>
Frank Yott, Jr.,	<i>Midland.</i>
Joseph Franklin Zwilling,	<i>Waterloo, Ind.</i>

Homœopathic Medical College.

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MAURICE P. HUNT, M.D.
EUGENE R. EGGLESTON, M.D.

OSCAR R. LONG, M.D.,
Non-Resident Lecturer on Mental Diseases.

Other Instructors and Assistants.

ERNEST A. CLARK, M.D.
BURT D. WALKER, M.D.
JENNIE HUGHES, M.D.
ERVIN D. BROOKS, B.S., M.D.

STUDENTS.

THIRD YEAR STUDENTS.

NAME.	RESIDENCE.
Charles Armstrong,	<i>Palmyra, Ont.</i>
William Hodgins Atterbury,	<i>Kalamazoo.</i>
Fred Charles Gilcher,	<i>Sandusky, O.</i>
Fred Alvord Miner,	<i>Ann Arbor.</i>

SECOND YEAR STUDENTS.

NAME.	RESIDENCE.
Leonel Sinclair Luton,	<i>St. Thomas, Ont</i>
Ernest Walstene Spinney,	<i>Detroit.</i>
Charles Martin Steele,	<i>Buchanan.</i>
John Frank Titus,	<i>Fostoria, O.</i>

FIRST YEAR STUDENTS.

NAME.	RESIDENCE.
Burt Franklin Bailey,	<i>Buchanan.</i>
Jennie Bailey,	<i>Buchanan.</i>
Edwin Eugene Gillard,	<i>Sandusky, O.</i>
William Franklin Holmes,	<i>Boston, Mass.</i>
Charles Montague,	<i>Buchanan.</i>
Job E. Reynolds, Jr.,	<i>Ann Arbor.</i>
Wilson Adams Russell,	<i>Galesburg.</i>
Clarence Augustus Schimansky,	<i>Sandusky, O.</i>
Leonard Herbert Stewart, Ph.B., <i>Kalamazoo</i> <i>Coll.,</i>	<i>Ann Arbor.</i>
Samuel Porter Tuttle,	<i>St. Louis.</i>
Marion Wells,	<i>Garbutt, N. Y.</i>

College of Dental Surgery.

FACULTY.

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W. FRANKLIN EDWARDS, B.S.
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Demonstrators and Assistants.

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STUDENTS.

RESIDENT GRADUATES.

NAME.	RESIDENCE
Will Hamilton Van Deman, D.D.S.,	<i>Ann Arbor.</i>
Charles Traver Whinery, D.D.S.,	<i>Ann Arbor.</i>

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Douglas Anderson,	<i>Maidstone, England.</i>
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Lewis Emmett Coonradt,	<i>Decatur, Ill.</i>
Mary Bruyn Crans, B.S., <i>University of</i>	
<i>North Dakota,</i>	<i>Grand Forks, N. Dak.</i>
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Edmond Dubuis, D.E.D.G., <i>Dental Depart-</i>	
<i>ment, University of Geneva,</i>	<i>Aigle Vaud, Switzerland.</i>
Walter Gideon Dunham,	<i>Hanover.</i>
George Frederick Fiddymont,	<i>Lockport, Ill.</i>
Van Camp Garratt, D.D.S., <i>American College</i>	
<i>of Dental Surgery,</i>	<i>Wateroliet.</i>
Fred Pratt Graves,	<i>Battle Creek.</i>
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John Henry Neeley,	<i>Lancaster, O.</i>
George A. Parmenter,	<i>Vermontville.</i>
Clarence Fletcher Piper,	<i>Toronto, Ont.</i>
Harry Benedict Respinger, D.E.D.G., <i>Den-</i>	
<i>tal Department, University of Geneva,</i>	<i>Basle, Switzerland.</i>
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Newton J. Smith, Jr.,	<i>Toulon, Ill.</i>
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Joseph Herman Stromier,	<i>Glasgow, Scotland.</i>
Clifford Paul Sweny,	<i>Mason, O.</i>
Andrew Roane Thorpe, A.B., <i>St. Vincent's</i>	
<i>Coll.,</i>	<i>Los Angeles, Cal.</i>
Christian Leonard Thuerer,	<i>Baraboo, Wis.</i>
George McAlpine Tyng,	<i>Victoria, Tex.</i>
Ernest Percy Van Kleek,	<i>Ann Arbor.</i>

Perley Tapley Van Ornum,
Elizabeth von Bremen,
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William Parker Winning,

Racine, Wis.
Cologne, Germany.
Cologne, Germany.
Saginaw, West Side.

JUNIORS.

NAME.

RESIDENCE.

Elmer Harry Argetsinger,
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John Wesley Bass,
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Willis Hezekiah Buttolph,
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Charles William Cleaver,
Jonathan Peter Collett, B.S., *National Normal Univ.,*
Edwin Victor Deans,
Charles Alphonsus Devlin,
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Ann Arbor.
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Menominee.
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Battle Creek.
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Vallejo, Cal.
Cassopolis.
Cassopolis.
Randolph, N. Y.
Ann Arbor.
Cincinnati, O.
Ann Arbor.
Unionville.
Theresa, N. Y.
Antwerp, N. Y.
Flint.
Morgan.
Benton Harbor.
Ann Arbor.
Denver, Col.
Pickering, Ont.
Helena, Mon.
Mt. Pleasant.

Thomas Steven Mann,
Andrew McInnes, M.D.,

Samuel Stephen Mummery,
James Henry O'Toole,
Charles Augustus Phillips,
Ross Porter,
Frank Glenn Powers,
Herman Prinz,
Charles Alfred Quackenbush,
James Robins,
William Howard Roper,
William Stanley Sandelands,
Thomas Francis Sheridan,
Charles Levant Sherwood,
Charles Eyster Slagle,
William Joseph Stapish,
William Taft, Jr.,
Morley Templar,
Wilber Townsend,
Albertus Van Ark,
Charles Alfred Wehe,
Ralph Levant Williams,
Raymond Lester Williams,
Robert Millard Woodin,
George Herbert Wooton,
John Alexander Wooton,
Percy Bennett Wright,

Ann Arbor.
Rosario, Argentine Republic.

Ann Arbor.
Ann Arbor.
Terre Haute, Ind.
West Sunbury, Pa.
Scotts.
Leipsic, Germany.
Ludington.
Warminster, Ont.
Reedsburg, Wis.
Ann Arbor.
Flushing.
Titusville, Pa.
Oregon, Ill.
Chelsea.
Cincinnati, O.
Oriel, Ont.
Albia, Ia.
Holland.
Topeka, Kan.
East Randolph, N. Y.
Beaver Dam, Wis.
Ann Arbor.
Hastings.
Hastings.
Jackson.

FRESHMEN.

NAME.	RESIDENCE.
William Henry Baker,	<i>Dalton.</i>
Clare George Bates,	<i>Elsie.</i>
Adelbert C. Baur,	<i>Ann Arbor.</i>
Arthur Stanley Bayne,	<i>LaSalle, Ill.</i>
Elmer Isaac Beistle,	<i>Buchanan.</i>
George Austin Bisbee,	<i>Ludington.</i>
James Carroll Blair,	<i>Toledo, O.</i>
Harry Earl Blunt,	<i>Ann Arbor.</i>
William Bruce,	<i>Battle Creek.</i>
Ernest Edward Bubb,	<i>Gloucester, England.</i>
June Alice Burr.	<i>Bangor, Me.</i>
Thomas Edward Carmody,	<i>Owosso.</i>
Williard Clarence Creath,	<i>Wooster, O.</i>

Guy Henry Dennis,
Lewis M. Dickens,
Albert DuBois,
Arthur Benton Dutch,
George Daniel Edgar,
Henry Christopher Fiebig,
Frank Russell Fletcher,
John E. Graham,
Walter Gray,
Selwyn Sumner Greeley,
Grant Simon Hadley,
Clark Warner Hill,
Louis Richard Hoelzle,
Samuel Wesley Honey,
Fred Holloway Hood,
Frank Ward Howlett,
Samuel William Hussey,
Carey Elijah Janes,
Wendell Howard Johnson,
Fred William Joslin,
Frederick John Klein, Jr.,
Gustave Eugene Kuhl,
Alfred Walter Lane,
Lachlin Donald Mac Rae,
Mason G. Martin,
Harry Almont McGrath,
Kennith McKay,
Frank Thomas McNamara,
James Weston Miner,
Roland Sweetland Mitchell,
Blaine Pettit,
Raymond Edgerton Preble,
William Racine Purmort,
Carlos Walter Putt,
Oloff Wellington Randall,
Albert Jesse Reed,
Dessie Brown Robertson,
John Milton Rosenthal,
George Willford Russell,
Samuel Kane Scharlott,
Charles Elsworth Sheldon,
Charles Linsley Sitzer,
Luman Reed Slawson,

La Salle, Ill.
Ontonagon.
Neenah, Wis.
Constantine.
Blissfield.
Grand Rapids.
Cadillac.
Waterloo, Ind.
Carthage, Mo.
Waterman, Ill.
Hillsdale.
Ann Arbor.
Ann Arbor.
Mitchell, Ont.
Rome Centre.
Ann Arbor.
Mendon, O.
Randolph, N. Y.
Alliance, O.
Big Rapids.
North Farmington.
Manchester.
Walkerton, Ont.
Central Mine.
Carson City.
Bangor.
Midland.
Chelsea.
Battle Creek.
Brantford, Ont.
St. Louis.
Detroit.
Saginaw, West Side.
Ann Arbor.
Port Huron.
Saginaw, East Side.
McConnelsville, O.
Fort Wayne, Ind.
St. Joseph.
Steubenville, O.
Ann Arbor.
Beatrice, Neb.
Bay City.

Philip Roper Smith,
John Charles Snelling,
James Curtis Snook,
Park Eugene Sprague,
Charles Clifford Stone,
Delmer Willis Stoup,
Elmer Elias Sutphin,
Daniel Templar,
Thomas Walter Thirlby,
George Dielerich Tienken,
John Clarence Todd,
James Norman Vodrey, Jr.,
Benjamin Franklin Vosburgh,
Harry Douglas Watson,
Albert Joseph Wildanger,
Albert John Wolfert,

Rushton.
Elsie.
Bakersfield, Cal.
Huron, O.
Carson City.
Ann Arbor.
St. Louis.
Woodstock, Ont.
Traverse City.
Rochester.
Pittsburgh, Pa.
East Liverpool, O.
Ann Arbor.
Grand Rapids.
Flint.
Toledo, O.

Summer School, 1894.

STUDENTS.

NOTE.—The italic letters in parenthesis show that the student is attending the University in the year 1894-5 and is enrolled in the department indicated:—*a* denoting Department of Literature, Science, and the Arts; *m*, Department of Medicine and Surgery; *l*, Department of Law; *d*, College of Dental Surgery.

NAME.	RESIDENCE.
Mary Josephine Anderson (<i>a</i>),	<i>Battle Creek.</i>
Henry Shepard Barton (<i>a</i>),	<i>Louisville, Ky.</i>
Adelaide Baylor,	<i>Wabash, Ind.</i>
Josephine M. Bloom,	<i>Michigan City, Ind.</i>
Robert Collyer Bourland (<i>a</i>),	<i>Peoria, Ill.</i>
Samuel Robert Boyce, Ph.C.,	<i>Brooklyn.</i>
Cecilia Brennan,	<i>Ann Arbor.</i>
Joseph Brennemann, Jr. (<i>a</i>),	<i>Peru, Ill.</i>
Carrie Ellen Britten, Ph.B.,	<i>Ann Arbor.</i>
Mary Barbour Brown, B.L.,	<i>St. Matthews, Ky.</i>
Wallace Everett Brown (<i>a</i>),	<i>Detroit.</i>
Hortense Valentine Bruce (<i>m</i>),	<i>Burnside.</i>
Rupert Olin Butterfield (<i>a</i>),	<i>Ann Arbor.</i>
Walter Hewitt Cheever,	<i>Milwaukee, Wis.</i>
John Chassell Condon (<i>a</i>),	<i>Ann Arbor.</i>
Solomon Macy Cowgill (<i>a</i>),	<i>Summitville, Ind.</i>
Henry Shepherd Crane (<i>a</i>),	<i>Detroit.</i>
Albert Blythe Crowe,	<i>Fort Wayne, Ind.</i>
Charles Madison Curry, A.B., <i>Franklin Coll.</i> ,	<i>Terre Haute, Ind.</i>
Mabel Claire Curry, A.B., <i>Franklin Coll.</i> ,	<i>Terre Haute, Ind.</i>
Augustus Elisha Curtis, A.B., <i>Union Coll.</i> ,	<i>Adrian.</i>
Hannah E. Davis,	<i>University, N. Dak.</i>
Howard S. Dean (<i>a</i>),	<i>Detroit.</i>
Rose Demmon (<i>a</i>),	<i>Ann Arbor.</i>
James Henry Dickson, A.B. (<i>a</i>),	<i>Portland, Ore.</i>
John Henry Dye (<i>a</i>),	<i>Ann Arbor.</i>
Anna M. Emerson,	<i>Sioux Falls, S. Dak.</i>
Edward Brind Escott (<i>a</i>),	<i>Grand Rapids.</i>

Percy Henriques Evans,	<i>Philadelphia, Pa.</i>
Orleana Amanda Fisher (a),	<i>Abilene, Kan.</i>
Rudolph Frederick Flinterman, A.B. (a),	<i>Detroit.</i>
Raynor Spalding Freund (a),	<i>Butte, Mon.</i>
Ralph Spellman Garwood, A.B.,	<i>Ann Arbor.</i>
Harvey Gould Gilkerson (a),	<i>Valencia, Kan.</i>
Netta Wilhelmina Haffner (a),	<i>Sturgis.</i>
Walter John Hammill, M.L.,	<i>Rockford.</i>
Louise Mather Harris (a),	<i>Ann Arbor.</i>
Harriet Hart,	<i>Sioux Falls, S. Dak.</i>
James Shelton Hathaway, A.B., <i>Berea Coll.</i> ,	<i>Frankfort, Ky.</i>
Marian L. Hathaway, B.S., <i>Albion Coll.</i> ,	<i>Addison.</i>
Aurie Vale Hedrick,	<i>Ann Arbor.</i>
Josiah Edwin Hickman (a),	<i>Benjamin, Utah.</i>
Eliza M. Hill (a),	<i>Ann Arbor.</i>
Edwin Smith Hinckley (a),	<i>Fillmore, Utah.</i>
Isabella Hosie (a),	<i>Wayne.</i>
Harry Milton Huff (t),	<i>Gobleville.</i>
Rebecca Jane Hutt,	<i>Waverly, O.</i>
Edith Munn Ingersoll,	<i>Bay City.</i>
Fred Alfred Jeffers,	<i>Atlanta Mine.</i>
Benjamin Franklin Kastl (a),	<i>Detroit.</i>
John William Kennedy,	<i>Sharpsburg, Pa.</i>
Cassius Jackson Keyser, B.S., <i>Univ. of the</i>	
<i>State of Missouri,</i>	<i>New Paltz, N. Y.</i>
Lucia Kieve (a),	<i>Marion, Kan.</i>
Carlyle Kittredge (a),	<i>Ann Arbor.</i>
John Fredrik Henry Kuyper (d),	<i>Holland.</i>
Claude Sheldon Larzelere (a),	<i>Ann Arbor.</i>
Walter Ferguson Lewis (a),	<i>Ann Arbor.</i>
Emma Loughnane,	<i>Lapeer.</i>
Lester Elmer Maher (a),	<i>Chicago, Ill.</i>
Frank Addison Manny, A.B.,	<i>Ann Arbor.</i>
Ina McBurney (a),	<i>Ann Arbor.</i>
Eleanor McCune,	<i>Detroit.</i>
Minnie E. McKenzie,	<i>Cincinnati, O.</i>
Lois Azubah McMahon (a),	<i>Ypsilanti.</i>
Margaret Merrill,	<i>Saginaw, East Side.</i>
Harry DeYoe Mills (a),	<i>Kalamazoo.</i>
James Orin Murfin (a),	<i>Ann Arbor.</i>
Belle Lucinda Otis (a),	<i>Ann Arbor.</i>
Clayton Amos Peters (a),	<i>Alga, Pa.</i>
Mary McCreary Peters (a),	<i>Alga, Pa.</i>

Hassie Hawley Preston,	<i>Ionis.</i>
Edward Josiah Quackenbush,	<i>Cedar Springs.</i>
Harrison McAllister Randall, Ph.M.,	<i>Ann Arbor.</i>
Laura Carroll Riggs,	<i>Kansas City, Mo.</i>
Arthur C. Roberts,	<i>Davenport, Ia.</i>
Albert J. Rooks, A.B.,	<i>Ann Arbor.</i>
Hudson Sheldon, A.B.,	<i>Corunna.</i>
Samuel Benton Shiley (<i>a</i>),	<i>Ann Arbor.</i>
Frank Stephen Shindler,	<i>Wakefield.</i>
Lucy Adella Sloan, M.S., <i>Hillsdale Coll.</i> ,	<i>Lansing.</i>
Mary L. Sloss,	<i>Edmond, O. T.</i>
Carrie May Sperry, A.B.,	<i>Ann Arbor.</i>
Fred Henry Staudt,	<i>Aurora, Ill.</i>
Frank Adams Stivers (<i>a, l</i>),	<i>Liberty, Ind.</i>
Delmer Willis Stoup (<i>d</i>),	<i>Ann Arbor.</i>
Clinton Mace Thomas,	<i>Clarion, Pa.</i>
Annie Sayre Thompson (<i>a</i>),	<i>Ann Arbor.</i>
Louise Helmhuth Uren, B.L.,	<i>Ann Arbor.</i>
Robert Dwight Wilson (<i>m</i>),	<i>Medway, Mass.</i>
Katherine D. Wiltzie (<i>a</i>),	<i>Detroit.</i>
Mary A. B. Witter,	<i>Denver, Col.</i>

Additional Names.

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

RESIDENT GRADUATE.

NAME.	RESIDENCE.
John Dudley Dunham, A.B., 1894,	<i>Columbus, O.</i>

CANDIDATE FOR A DEGREE IN ENGINEERING, STUDYING IN ABSENTIA.

NAME.	RESIDENCE.
Ernest Blackman Perry, B.S., 1889, Mechanical Engineering.	<i>Bay City.</i>

UNDERGRADUATES.

NAME.	DEGREE.	CREDIT.	RESIDENCE.
John Walter Frink Bennett, B.S.(E.E.),			<i>Austin, Ill.</i>
Herman Cornelius Markham,			<i>Ann Arbor.</i>
Edward Louie Moseley,			<i>Grand Rapids.</i>

DEPARTMENT OF MEDICINE AND SURGERY.

RESIDENT GRADUATE.

NAME.	RESIDENCE.
George Warner Burleigh, M. D.,	<i>Battle Creek.</i>

THIRD YEAR STUDENT.

NAME.	RESIDENCE.
Sarah Ellen Conner,	<i>Port Huron.</i>

FIRST YEAR STUDENT.

NAME.	RESIDENCE.
Albert Josiah Read,	<i>Battle Creek.</i>

Summary of Students.

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

Holder of the Elisha Jones Classical Fellowship	1
Resident Graduates	62
*Candidates for an Advanced Degree, enrolled in other departments	5
Graduates Studying <i>in Absentia</i>	18
Undergraduates:	
Candidates for a Degree	1193
Students not Candidates for a Degree	244—1523

DEPARTMENT OF MEDICINE AND SURGERY.

Resident Graduates	6
Fourth Year Students	70
Third Year Students	71
Second Year Students	98
First Year Students	132
Special Students	2
*Students enrolled in the Department of Literature, Science, and the Arts:	
Second Year Students in Medicine	6
First Year Students in Medicine	4— 389

DEPARTMENT OF LAW.

Resident Graduates	12
Seniors	307
Juniors	321
Special Students	9
*Students enrolled in the Department of Literature, Science, and the Arts	21— 670

SCHOOL OF PHARMACY.

Resident Graduates	3
Second Year Students	23
First Year Students	52— 78

* Included in the Summary by States only in the departments in which they are enrolled.

HOMŒOPATHIC MEDICAL COLLEGE.

Third Year Students	4	
Second Year Students	4	
First Year Students	11—	19

COLLEGE OF DENTAL SURGERY.

Resident Graduates	2	
Senior	48	
Juniors	63	
Freshmen	72—	185
		<hr/>
		2864
Deduct for names counted more than once		46
		<hr/>
Total		2818

SUMMER SCHOOL OF 1894.

Total in the School	91	
Deduct for names counted in other departments	45—	46
		<hr/>
Grand Total		2864

SUMMARY BY STATES AND BY DEPARTMENTS.

	Lit. Dept.	Med. & Surg.	Law Dept.	Pharm.	Homœo.	Dent.	Total.
Michigan	993	194	218	36	11	102	*1554
Illinois	192	16	84	7	—	10	309
Ohio	80	32	63	8	4	15	†202
Indiana	49	14	40	3	—	4	†110
Pennsylvania	18	7	56	1	—	3	85
New York	23	20	13	9	1	7	73
Iowa	24	8	26	—	—	4	62
Missouri	20	7	25	3	—	1	†56
Kansas	13	4	14	—	—	1	32
Wisconsin	9	10	6	—	—	5	30
California	3	2	17	1	—	5	28
Minnesota	11	7	7	1	—	1	†27
Massachusetts	7	12	3	—	1	—	23
Colorado	10	2	5	2	—	1	20
Nebraska	2	3	13	1	—	1	20
Kentucky	7	2	4	2	—	—	15
Montana	6	—	6	—	—	1	13
Texas	5	1	3	1	—	1	11
Oregon	2	2	5	—	—	1	10
Utah	8	—	2	—	—	—	10
Washington	1	3	5	—	—	—	9
North Dakota	—	3	4	—	—	1	8
New Hampshire	4	1	2	—	—	—	7
Wyoming	2	—	4	—	—	—	6
Arkansas	1	—	3	—	—	—	4
Maine	1	2	—	—	—	1	4
New Jersey	2	1	1	—	—	—	4
North Carolina	—	2	2	—	—	—	4
South Dakota	3	—	1	—	—	—	†4
Tennessee	1	2	1	—	—	—	4
District of Columbia	3	—	—	—	—	—	3
Florida	1	—	—	—	—	—	3
Louisiana	3	—	—	—	—	—	3
Oklahoma	1	1	1	—	—	—	3
Vermont	—	2	2	—	—	—	3
Maryland	1	—	—	1	—	—	2
Mississippi	1	—	1	—	—	—	2

* Deduct three for names counted twice.

† Deduct two for names counted twice

‡ Deduct one for name counted twice.

New Mexico . . .	I	—	I	—	—	—	2
Virginia . . .	I	I	—	—	—	—	2
West Virginia . .	I	—	—	I	—	—	2
Alabama	I	—	—	—	—	—	I
Arizona	I	—	—	—	—	—	I
Connecticut . . .	—	I	—	—	—	—	I
Idaho	—	—	I	—	—	—	I
Indian Territory .	—	—	I	—	—	—	I
Rhode Island . .	—	I	—	—	—	—	I
South Carolina . .	—	—	I	—	—	—	I
Ontario	2	6	4	—	2	9	23
Germany	I	—	—	—	—	4	5
China	I	3	—	—	—	—	4
England	—	—	—	—	—	3	3
Mexico	I	—	I	—	—	—	2
New Brunswick . .	—	2	—	—	—	—	2
Province of Quebec	—	I	I	—	—	—	2
Scotland	—	—	—	I	—	I	2
Switzerland . . .	—	—	—	—	—	2	2
Argentine Republic	—	—	—	—	—	I	I
Barbadoes	—	I	—	—	—	—	I
Bulgaria	I	—	—	—	—	—	I
Italy	—	I	—	—	—	—	I
Japan	—	—	I	—	—	—	I
South Africa . . .	—	I	—	—	—	—	I
Sweden	—	I	—	—	—	—	I
Total	1518	379	649	78	19	185	*2828

* Deduct ten for names counted twice.

Officers of University Alumni Associations.

FOR THE YEAR 1894-95.

DEPARTMENT OF LITERATURE, SCIENCE, AND THE ARTS.

President	WILLIAM J. STUART	'68	<i>Grand Rapids.</i>
Vice-President	WILLIAM SAVIDGE	'84	<i>Spring Lake.</i>
Secretary	JOSEPH H. DRAKE	'85	<i>Ann Arbor.</i>
Treasurer	JAMES M. CROSBY	'91	<i>Grand Rapids.</i>
Director	EDWIN S. SHERRILL	'80	<i>Detroit.</i>
Director	DWIGHT C. REXFORD	'72	<i>Detroit.</i>
Director			
Necrologist	THEODORE R. CHASE	'49	<i>Detroit.</i>

DEPARTMENT OF MEDICINE AND SURGERY.

President	WILLIAM F. BREAKY	'59	<i>Ann Arbor.</i>
1st Vice-President	MARY SMITH	'84	<i>Indianapolis, Ind.</i>
2d Vice-President	FRED W. FREEMAN	'82	<i>Saginaw, East Side.</i>
3d Vice-President	WILLIS E. CHAPMAN	'94	<i>Sparta.</i>
4th Vice-President	DELIA M. RICE	'94	<i>Baltimore, Md.</i>
Secretary	VICTOR C. VAUGHAN	'78	<i>Ann Arbor.</i>
Treasurer	CYRENUS G. DARLING	'87	<i>Ann Arbor.</i>

DEPARTMENT OF LAW.

President	THOMAS M. COOLEY		<i>Ann Arbor.</i>
Treasurer	ALPHEUS FELCH		<i>Ann Arbor.</i>
Secretary	JEROME C. KNOWLTON		<i>Ann Arbor.</i>

SCHOOL OF PHARMACY.

President	CHARLES C. SHERRARD	'90	<i>Detroit.</i>
1st Vice-President	FREDERICK H. NICKERSON	'93	<i>Ann Arbor.</i>
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Corresponding Secretary and Treasurer	WALLACE PALMER	'90	<i>Ann Arbor.</i>

HOMŒOPATHIC MEDICAL COLLEGE.

President	JOHN M. LEE	'78	<i>Rochester, N. Y.</i>
Vice-President	ERNEST A. CLARK	'90	<i>Ann Arbor.</i>
Secretary	NELSON H. CHAMBERLAIN	'92	<i>Los Angeles, Cal.</i>
Treasurer	FRED J. PECK	'91	<i>Ansonia, Conn.</i>

COLLEGE OF DENTAL SURGERY.

President	LOUIS P. HALL	'89	<i>Ann Arbor.</i>
Vice-President	ETHELWYN PHILLIPS	'93	<i>Chicago, Ill.</i>
Secretary and Treasurer	ALLISON W. HAIDLE	'9	<i>Ann Arbor.</i>

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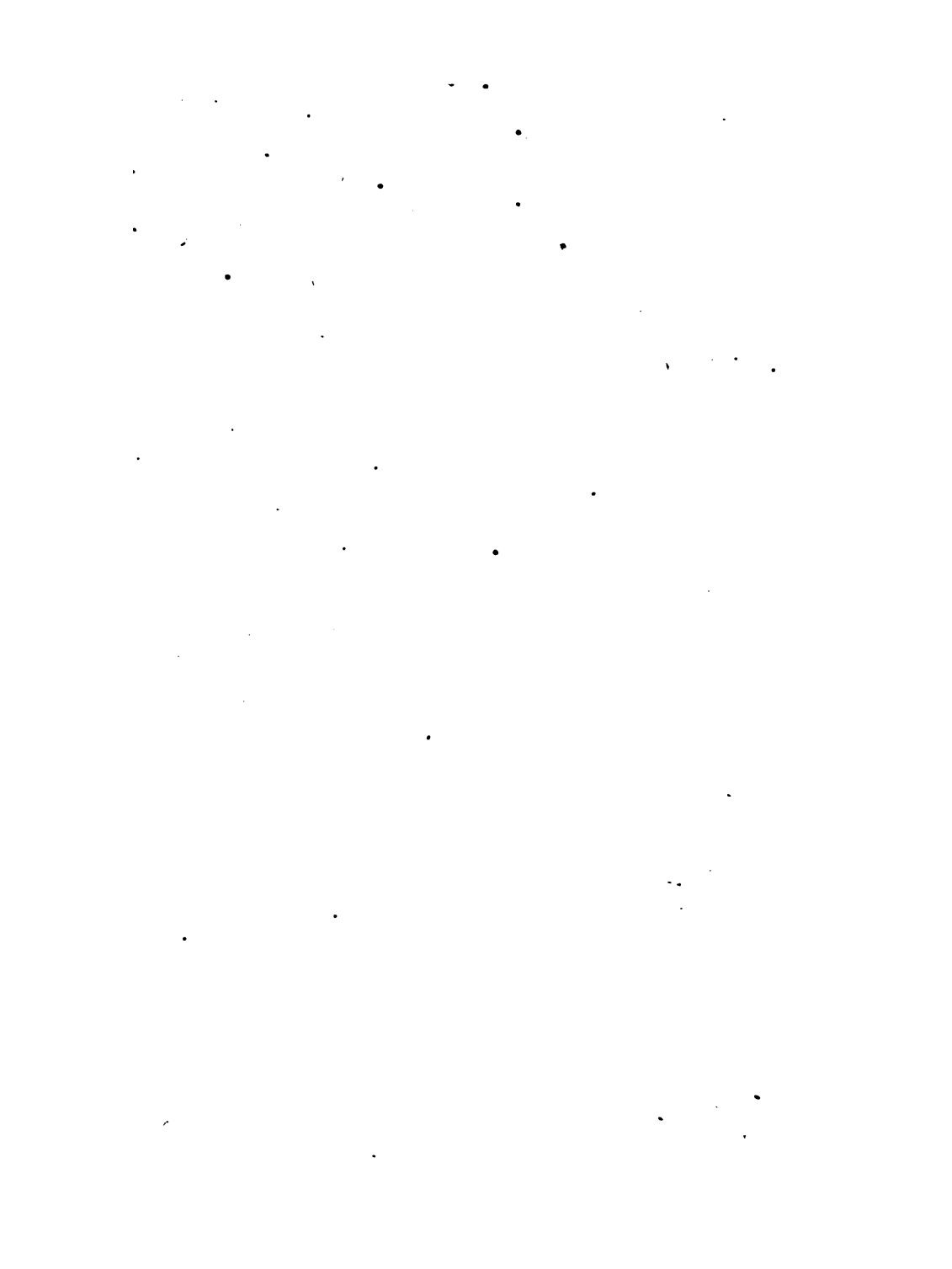
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